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BIRD NOTES

from

40 Selborne Drive

Piedmont, California

1933 to 1939

by

Ernest I. Dyer

PART III

January 1, 1934, to December 31, 1934 . . . pp. 550-866A

Subject: mainly Thrashers, Road-runners

both then retiring to the lower branches of the old oak where they examined things after B had played with twigs on the ground. B then mounted to his observation post above, but G was invisible. Thinking that she may have returned to the dorm., I went there and found her sitting quietly about 2 feet from the remains of Nest 5, from which point she looked down upon me calmly.

Another
nest?

11:20 A.M. At 11:10 I went to the dormitory tree. There was one of the thrashers carefully arranging a loose twig in Brownie's night roost close to the site of Nest 5!! This is behind the large wind screen and just missing being under the roof which was placed over No.5.

Dec. 31st.

There were no signs of nesting activities during the day, other than occasional perfunctory examinations of twigs on the ground.

Full song. About 4 P.M. a thrasher, probably Brownie, was singing full song somewhere west of the living room. He had just been scripping at a **Cat episode.** cat at the oval lawn. When I sneaked up on this animal with a shotgun it crawled out of the bushes at my feet and wanted to rub itself on my legs! I could not murder it in cold blood, so chased it away, though it was difficult to convince ^{it} that it belonged elsewhere.

1934

January 1st., 1934.

8:30 A.M. The thrashers pecking about on the outskirts of the oval lawn. Raining. Only the tops of their heads and the tips of their tails are wet after a very rainy night.

**Full song
in rain.**

2:30 P.M. One of the thrashers is singing full song again at the same place as yesterday afternoon while it is raining.

Jan. 2nd.

Full song. 10:40 A.M. I have just left Brownie sitting in his night roost. At 9:50 A.M. short phrases of full song were heard near the oval lawn.

I went there and Greenie came out for one worm. I then went to the glade and the wren came from about 75 feet away where he had been singing and scolding, and took three worms from my hand while I sat in the chair. Brownie then appeared to get his share, then went down over the bank into the chaparral, working his way east. I then saw him, as I thought, about 120 yards away in the top of a cypress in the direction of Robinson's. He then flew the rest of the way to that place. I went over there to verify this observation and, when about 200 yards from the glade, loud thrasher calls and sustained song were heard from my place and I could see a thrasher sitting on a bare limb in the top of the old oak. I assumed this to be Greenie calling for her mate to come back, so as I could see no signs of B where I was, I returned and tried to induce the singer to come down to me so that I could determine who he was, but he would pay no attention to me, calling persistently and looking intently off to the S.E., using rich phrases of full song. He kept this up for about 15 minutes, then lowered his voice slightly and sang more or less continuously for several minutes, when a thrasher was heard approaching from the S.E. It climbed the tree and proved to be Greenie, the singer being Brownie and the one seen going over to Robinson's being, therefore, G. They sat side by side for a few minutes, then both came down to me for worms, the wren managing to grab one from my hand before G could get there. B then carefully gathered a sheaf of soap-root fibre and root-lets at my feet, left in the direction of the dormitory tree where he was found sitting on his night perch, as already noted. There is no evidence of a nest there (as seen from the ground), but, once again, it will be seen how powerful a nesting instinct, or reflex, actuates these birds at all times. It will also be seen that they are again approaching a cycle of full song after a period devoted almost entirely to undersong. We are in a period of rainy weather and everything is dripping wet, though it was not actually raining at the time of

What's it
all about?

these observations. (Temp. 52).

Thrushes. (The Varied Thrush has been common here the past few days.

The Hermit thrushes are eating the raspberries of which there is always a second crop beginning about Dec. 1st., if there are good early rains, or if the bushes are irrigated about the time the first rains are due. These berries ripen fully and are but slightly deficient in flavor).

B's roost. At 5:12 P.M. (Sunset 5:02) Brownie climbed up to his roost for the night.

Jan. 3rd.

Full song. Occasional full song. Brownie and the wren came to me for worms where I was digging in the garden. Both thrashers frequently together, G still deferring to B in the matter of worms.

Jan. 4th.

Brownie, Greenie and the wren came promptly for worms in the glade about 9 A.M.

About 9:40 I looked up into the dormitory tree on the off-chance **B "nesting"** of seeing something, and there was Brownie arranging a twig in his high roost. When I talked to him he climbed down, stood for a moment in front of my face on the platform, then departed making the "blue-bird" call. (Temp. 52, bright and fair).

Jan. 5th.

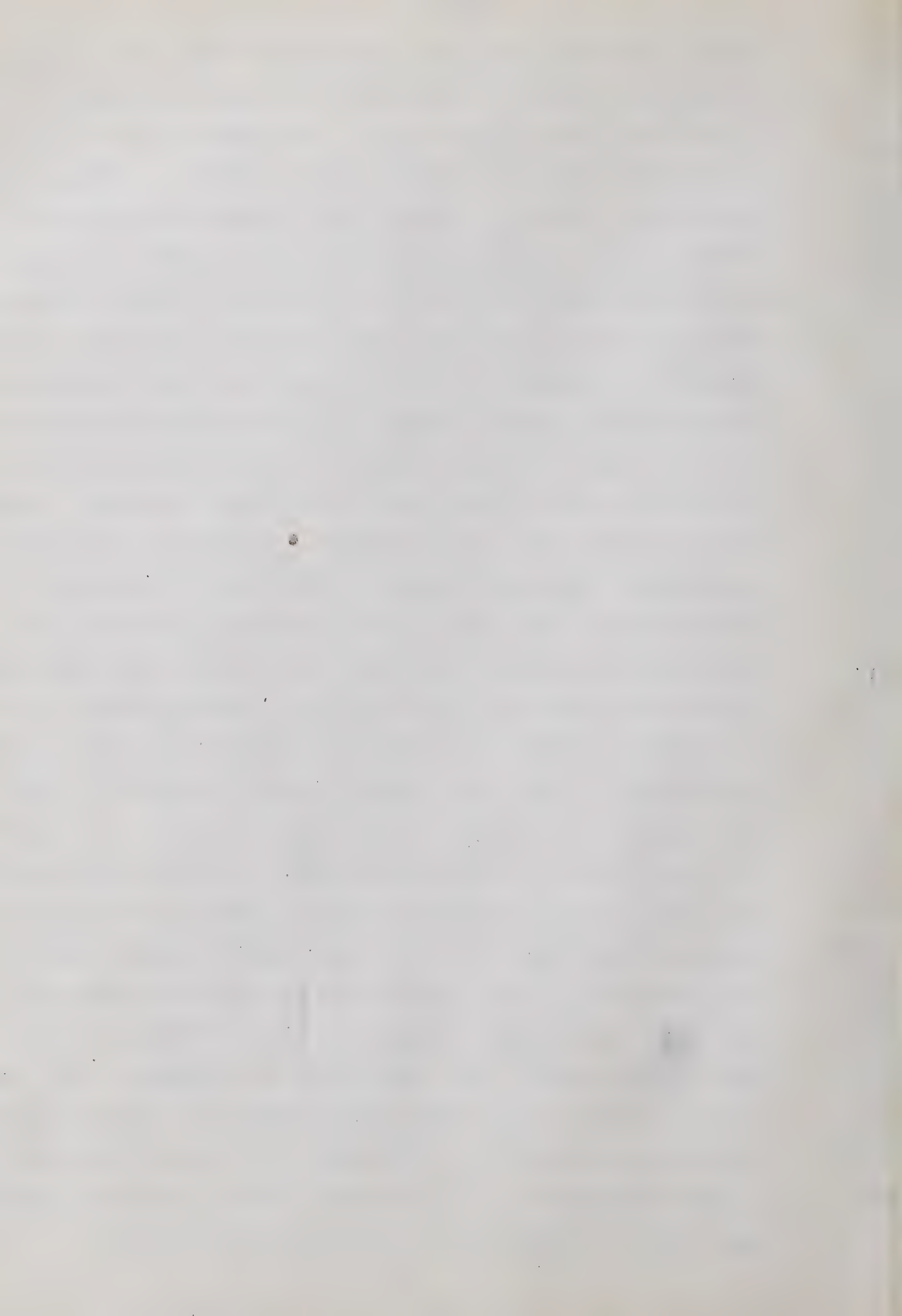
B waits on chair for me. 8:50 A.M. As I was filling the dishes in the glade with soft-food

Brownie came out of the bushes and went directly to my chair, where he sat, seemingly anticipating my arrival there with worms, patiently watching the commissary operations. When I approached the chair he retreated a few feet, then jumped to my knee, talking softly. That feather is still missing from his left wing. Greenie would not come as she was too much interested in picking up twigs. Brownie joined her, there was a sudden alarm and both bolted into the bushes.

UNIQUE EXPERIENCE 11:15 A.M. About 10:30 as I was walking along the drive-way

west of the house I heard the unmistakeable song of the Russet-backed thrush, below the wall, accompanied by no other bird sounds. I stopped to listen and, from the same point, there came the song (not a call) of the Western Robin, followed by thrasher music. I finally located the singer in the top of a dense mass of hazel and black-berry below the wall, about 30 feet away under an oak. I could not recognize him positively, but thought him to be Brownie. I tried for about 5 minutes to get him to come to me, but he was much interested in something underneath the bushes and would not leave his perch, although he pretended to make a violent struggle to escape from the tangle in which he sat, and come. This bluff lasted for several minutes, but I had seen it before, so went to the glade to see if B&G were there, in which case this fellow would be an outsider. Greenie was in the glade singing undersong with many variations fully up to B's standard. She would not come closer than about 3 feet and seemed frightened, so I looked behind me and discovered the cause to be a large black nondescript dog that had sneaked in close behind me. After altering this situation I returned to the west and found the thrasher in the same spot, as if glued there. It was a case of the mountain and Mahomet. When I reached the bird it was, of course, Brownie, still interested in something in the tangle which I was not able to find. He was not interested in worms, but worked over toward me and sat about 5 feet from my face, facing me. Beginning with soft sounds barely audible even at that short distance, he passed through all the stages of undersong into full song of astonishing richness and power. Whenever he stopped, I talked to him and the whole performance was repeated. This lasted for about 15 minutes, when a milk wagon, roaring along the road immediately behind him while he was concentrating on his song, frightened him off over my head down into the thicket outside the fence, where he began all over again, but would not come back on call.

B's full
song heard
5 feet away.



It is utterly impossible to describe this song--or perhaps it is more nearly accurate to say: these songs, since they all differed in many respects despite their general similarity; especially in the introductions. The situation is further complicated by the close view of the singer and his almost comic air of concentration and intense earnestness. The element of surprise also enters strongly, for while one is trying to "absorb" a phrase just uttered it is succeeded by one that does not resemble it in any respect whatsoever, and this again may be followed by another series of phrases that seem to belong to a different creature altogether--and often does. The thrasher, however, is such a consummate adapter that he can introduce the "songs" of the hen, the jay and the ground squirrel and other creatures into his own compositions and make music of them. He tones down the harsher ones and makes them melodious.

This was my first experience of full song at such close range, though I had heard it, fragmentary in character, at about a dozen feet and also at about 25 feet, the latter a continuous performance. It was an experience such as one never forgets, appealing so strongly to one's emotions as to render an attempt at cold-blooded analysis a sacrilege. Therefore

Some Characteristics in which thrasher song excels. it will not be attempted here, and I shall content myself with the statement that, in my opinion--and I am not excepting the mocking bird with which I have lived for many years--that for richness of tone-quality, ingenuity and variety of phrasing, astonishing contrasts, fervor of utterance, power and mimicry and freedom from harsh phrases (notwithstanding what has been said on this latter point to the contrary), the California Thrasher's full-song at its best is equalled by the song of no other bird on this Coast. Unfortunately, however, he is not generous in the matter of giving us opportunities to hear him either as often or as near as the splendor of his performance warrants.

Jan. 6th.

Male is more
enthusiastic
"nester"

About 8 A.M. both thrashers came to me at the territory tree. After having a few worms, both began collecting anything that looked like nesting material, Greenie to drop it almost immediately and wander off and Brownie to carry it up through the glass house to his night roost, where, in attempting to arrange it properly, all of it fell to the ground. I left him there looking as blank as the space where the "nest" ought to be and went to the glade, where Greenie was unusually tame and friendly, eating from one hand, the wren from the other. After Brownie had stared at vacancy long enough he joined the others and sat on my knee where he could get the first crack at the worms. In this respect he is very practical, but in the matter of determining when a nest ought to be built, I judge from his actions now and in the past, that he considers the proper time to be any time when there are two thrashers occupying the same territory, whereas Greenie, possibly due to the fact that the basic structure of the egg is a product of her own manufacturing plant, is less enthusiastic in off season because she does not hear the wheels revolving around inside until they start of their own accord. While Greenie does, as frequently recorded, carry twigs about at any time, the impulse is less persistent than with her mate. Brownie seems to act on the simple theory that if there are trees and bushes and another thrasher around and nesting material, the latter should be carried up into the trees. Sooner or later eggs will happen and these should be sat on for an indeterminate period of time.

Jan. 7th.

B clowns it.

About 9:30 A.M., there being a strong north wind, nearly all of the birds were on the warm south slope. In response to call Brownie appeared at the fence below the glade and at the top of the bank. He spent five or ten minutes in futile efforts to get through the fence

instead of climbing over, repeating his queelick call all of this time and appearing to be hopelessly baffled. When I moved to another spot he found no great difficulty in climbing up and over, but in order to reach my knee, he found it necessary to climb up into a small crab-apple tree by which I sat, so that he could drop down on to me without undergoing the fatigue of an upward flight of a couple of feet. One worm was enough, so he retired to the bushes 5 or 6 feet behind me and sang the Russet-backed thrush song several times softly, with no introductory or connecting phrases of his own--an unusual performance for him. This was followed by the ground squirrel and the tree-toad imitations, again with no phrases of his own. Usually imitations are interpolated in his own compositions and form but a small part of them. It is worth noting, also, that there has been no Russet-backed thrush heard here for several months--this is not their season. Consequently it appears that the thrasher does not need to have an exemplar at hand constantly in order to reproduce his music.

Mimicry

Good memory
for sounds?

During this period Greenie was present most of the time, but not especially interested. The wren, however, got his share of worms.

Night roost.

5:37. Brownie and Greenie are both in their night roosts about 6 feet apart; B in his accustomed place and G in the place where he was seen to go for the first time some weeks ago. Presumably he has occupied it regularly ever since. B is protected from north winds by the wind-screen, but G is not. Before going to roost Greenie inspected thoroughly a shelter which I placed in the lath house some months ago. This is the first time I have seen any bird enter it. Evidently neither thrasher cares for the glass house as a roosting place. They are not afraid of it as they have demonstrated countless times. Their roosts are about 3 feet from it.

G inconstant
as to roost?

Jan. 8th.

On entering the glade at 9 A.M. the two thrashers and the wren came out of the bushes immediately, all eager for worms; so much so

that Greenie and the wren lit on my hand at the same instant, frightening each other away temporarily.

Jan. 9th.

The thrashers were about as usual, B singing undersong; but no full song was heard here.

Cheeky wren. As I was crouched down digging in the garden with a trowel, the wren gave me a start by suddenly climbing up my leg to my knee, where he began to scold to draw my attention to his pressing need for food. I knew he was somewhere about, but was not prepared for this sudden apparition. In many respects he is bolder than either thrasher, and seems to keep pretty well informed of my movements.

Jan. 10th.

Busy in the garden and few observations made. Considerable undersinging and occasional loud calls.

Jan. 11th.

Full song. Brownie favored me with a few bursts of full song while sitting about 15 feet from me. Hawks have been raiding the place the last few days, making the birds shy. While digging in the garden occasional creatures are turned up that look as if they might be a preliminary stage of the Jerusalem cricket; they are about an inch and a half long. I usually offer them to the thrashers, who are very fond of them. This morning the wren snatched one out of my hand before either of the thrashers could get there and flew off with it. I was surprised that so small a bird would tackle so large an insect.

Jan. 12th. . . . Rain has commenced to fall.

Bird reaction to enemies. 11:15 A.M. It lasted less than 5 minutes. Going to the glade at 9:45, revealed the place bare of birds. Calling brought no response, but a thrasher was heard scripping a long way off to the S.E. The sound seemed to approach for a time, then ceased entirely, and a hawk was seen sitting on a rock directly in line with the point from

which the thrasher call seemed to have come. There were very few birds to be seen anywhere. I got my 22 calibre rifle and went on a prowl about the grounds. A large white and yellow cat was soon located and deprived permanently of further interest in the bird world. When I

Minus one
more cat.

All birds
return. Sur-
prising
concentration.

finally finished my round at the glade it was full of birds: the two thrashers, the two kinds of towhees, the wren tits, fox, song, golden crowned and Gambel (or Nuttall) sparrows, plain titmice and in the

Are noisy.

surrounding trees were scores of robins and several varied thrushes, purple and house finches; but no wrens seen or heard. The birds in the glade, especially the wrentits, spotted towhees, plain titmice and song sparrows were very noisy about something, though I could see no enemy. The thrashers were making a long draw-out sibilant sound that was different from anything that I have heard from them before, but

B comments
on cat epi-
sode!

came promptly for worms after examining the sky carefully. Brownie to sit on my knee uttering the first cat-like meowing sounds heard

from him for some time (possibly to let me know that he was aware of the passing of ^{the} cat a few minutes earlier!) B&G then retired to the bushes some few feet apart and continued to exchange the peculiar call first noted. I do not know its significance. Finally conditions in the glade became normal. It appeared to me that the birds were here all of the time that their enemies were present; but concealed, appearing only when the danger had passed and that their noisiness in the glade ^{might be} ~~was~~ merely an expression of their excitement and relief.

On the other hand, the thrashers seemed to be the focus of the sensation and may have caused it by their new and unusually persistent call. The motive prompting this call is not clear, as the two birds were not observed to be especially concerned with or about each other.

More kinds of
birds appear.

On finishing this note, I went to the glade again, on the way noting the presence of juncos, hermit thrushes, jays and quail. A half dozen green-backed goldfinches were bathing and the wren flew out of

the glade to light on my hand for a worm while I was still in the road; as I entered, Brownie ran in from the outside and flew up to my hand before I had a chance to seat myself. Evidently normalcy in the local bird world had returned--a flicker sat on top of a lamp-post down in the street and the English sparrows quarreled in the bushes outside the fence.

More "nesting" 12:45 P.M. About 12:30 as I stood near the dormitory tree, both thrashers climbed up into it. One inspected the interior of the glass house, perched for a few minutes above Room B, then to the glass house, then to B's night roost--probably Brownie. The other examined thoroughly with its bill what appeared to be, ^astructurally, a good nest site ^{lowest} on the S.E. limb. I left them both in these locations.

On going out an hour or so later no results of these activities were visible.

Jan. 13th.

About 8 A.M. Greenie was seen sitting on a bench about 40 yards away as I looked from the dining room window. I called and whistled to her; she acknowledged my efforts, but did not care to come to me. However, Brownie, out of sight, probably in the old oak, responded by breaking into full song; repeating it whenever I called again. As I had an engagement in S.F. (S.O.Co.) the matter was not followed up.

Jan. 14th.

On going to the glade about 8:30 A.M., the two thrashers and the wren appeared almost at once; the wren coming from behind, lighting on my shoulder and walking down to my hand for his worm. B&G were ^{both} conversing, using as a basic motive a soft liquid, fluting strongly reminiscent of the sounds emanating ^{either} from a feeding flock of American Widgeons (Baldpates) or from one of American Pintails (Sprigs) similarly occupied. I am not sure which at the moment, but will visit the ducks at Lake Merritt and find out. (See p. 578)

**B answers
call with
full song.**

**Thrasher
talk.**

Discussion of thrasher conversation. Brownie was so much enamored of this sound that he continued to make it while sitting on my knee. This sound has been referred to before in these notes, though it is seldom uttered. The extraordinary versatility of the thrasher's vocalizations, whether in talk or song, has been repeatedly noted herein; also his penchant for assigning (what appears to me to be the case) some particular subject matter for discussion with his mate and me at any time suiting his fancy. On such occasions, for example, B&G will be found in the bushes in the glade, exchanging at short intervals, some short succession of notes or phrases in which some definitely recognizable phrase is present. This may continue for several minutes and, so far, seems to be merely a means of keeping in touch with each other; but on the next occasion the "theme phrase" may be entirely different and generally is. In fact, it may never be heard again--or at least, recognized again. Then, again, it may be heard days, weeks or months after on some other conversational occasion. When the birds are talking thus and one of them comes to me, that one continues repeating this phrase usually. By talking to it I can sometimes get it to change it. Often only one bird, usually Brownie, is present. When he jumps upon my knee he may be as silent as an oyster and I may be unable to get any sound whatever out of him. At other times he may initiate the conversation by uttering a sequence of notes or articulated syllables and, for that particular occasion, refuse to change it, as if it had some definite significance that he wished to convey to me. On the other hand, he may change it at once. If these birds are following a definite pattern in their talk, I have not been able to detect it, nor have I succeeded in discovering that any particular phrase carries with it any exclusive association. Thus, for example, the parental cluck, cluck, cluck, used to attract the attention of a nestling that is not responding promptly to an offer of food has also repeatedly been used by both thrashers

Cluck

when they have seen me dragging a snake by the tail. Perhaps it means worm!

Jan. 15th.

Call alarm

About 8:30 A.M. B&G were at the oval lawn. When I called B answered by scripping (khrick). A few minutes afterwards he was peering down over the wall that supports this grass plot on the south scripping excitedly. Cf. preceding paragraph. I went down with a gun, but could find nothing; both birds running to the glade where they and the wren*joined me. B had something to say to me, but what I do not know.

I forgot to record yesterday that B, after a good feed, carried two worms to his mate in the bushes and gathered soap-root fibre, only to drop it again.

Jan. 16th.

Cat again.

I was away all the afternoon until about 5:10 yesterday at which time I returned to find a black cat eating the soft-food in the glade. This animal decided to leave before I was able to get my gun and return

Brownie was seen approaching the dormitory tree and, as I watched nearby, climbed to his roost for the night; I could not deflect him from his purpose by displaying worms.

Talk.

9:30 A.M. (16th.) About 9 B&G came to me in the glade. B sat on my knee and talked with little high-pitched chirping sounds which he would not change. G was very much preoccupied with gathering

"Nesting"

nesting material, but would drop it when I held a worm out to her in order to come and get the worm. This was repeated 5 or 6 times. She did not use the same talk as her mate, but the "bluebird" call as her central motive. B was stimulated to gather fibres by G's example, but the impulse soon faded out when he located a good digging prospect at my feet. G continued gathering material and went out of the glade on the north side, B climbing up into the low clump of branches where Nest NO.1 was built. I then left.

Reversal . It was noted that, contrary to past behavior, it was Greenie, the female, that showed the nest-building impulse most strongly on this occasion.

golden crowned and song

The wren did not come, but the fox sparrows and brown towhees waited eagerly nearby for me to fill the soft-food dishes. The three sparrows coming within 2 feet of me. One fox sparrow took food within about six inches of my hand. Yesterday one sang about 10 feet from me.

Jan. 17th.

9:00 A.M. (Temp. 42). No birds in the glade when I entered; but the two thrashers and the wren came in a minute or two. then the usual assortment of other birds. My knees shook so with the cold that Brownie twice was startled into jumping to the ground. His talk was principally based on an almost inaudible, extremely high-pitched squeak- different than yesterday's--later modified into a soft, low warble ending in a rising inflection as if asking a question. Greenie was silent. Neither showed nesting inclinations during the short time I was in the glade, where they remained after I left. The wren followed me out of the glade to get one more worm.

Jan. 18th.

At about 8:15 A.M. (low fog) Brownie and the wren responded to my call in the glade. G did not show up. Brownie had nothing whatever to say until I repeated the word Greenie to him several times, when he responded with two syllables which may have been meant as an imitation. This was repeated several times while he sat on my knee. The first syllable was accented and the last was e each time.

It might be considered as something like ee-lee but it is not certain.

Greenie, ~~when~~ later in the day was observed near the oval lawn, and was somewhat shy; although neither of the thrashers cares very much to come out into the open here. Perhaps the warning charge of shot

Talk.
3 attempts to
say :
"Greenie" (?)

G responds
with under-
song.

that I had let fly somewhat to the rear of a neighbor's black cat not long before had something to do with Greenie's hesitation. However, by talking to her, she was stimulated into undersong of several minutes' duration while facing me on the ground, rather an unusual performance for her--perhaps unique--as, at the moment, I have no recollection of similar response from her.

It was a busy day for me, so I had little opportunity to observe the birds, although Brownie favored me with a splendid $\frac{1}{2}$ song near the berry-patch, full of mimicry and unexpected turns. (For some time I have realized that my first tentative classification of thrasher song must be overhauled; sooner or later it shall be done).
January 19th.

At 9:20 A.M. the wren was heard scolding as I entered the glade and flew to me almost as soon as I sat down, clinging for a few moments on my coat sleeve before taking the worm. G was the first thrasher to appear, coming out of the bushes to hammer at a lump of suet and chicken feed in front of me and regarding me with indifference until she heard B approaching from the other side of the fence with a heralding chu-u-r-rp, when as B jumped to my knee, she decided to take worms offered in my left hand. B's talk was varied this time, and consisted of a variety of phrases, most of which were inarticulate and can not be even roughly approximated in writing. There was one resembling the cackling of a hen and another which can be approximated as pit-it-che-ee'. (Not a new one). All were low and soft, perhaps not audible beyond about 10 feet. He refused to "call Greenie" (Because G was present?). Neither showed any nesting impulse at this observation.

Jan.² 30th.

About 8:30 A.M. the two thrashers and the wren came into the glade as soon as I sat down, and the usual procedure followed. B talked a little, but I was unable to determine whether it was new or old.

Talk

At 11:30 B&G were both busily engaged in digging about 25 yards apart, both singing to themselves.

Jan. 21st.

Singing before sunrise. The thrashers were heard calling loudly and singing occasional

snatches of full song about a half hour before sunrise. This is the closest approach to singing at night that I have heard from them; it should be noted, however, that it is practically full daylight at that time. About 8:30 A.M. Brownie came to me in the upper garden--an unusual though not unprecedented thing for him to do. When I went to the glade, the wren came at once, then Greenie and, shortly, Brownie still not satisfied, although I had just let him have all the worms he wanted 2 or 3 minutes before. The glade rapidly filled with other birds to eat the fresh supply of soft-food.

About mid-day, a neighbor, Mr. O'Neill came with his son, who is preparing for a Boy Scout test in which he has to be able to describe 40 different kinds of birds. I was able to show them, almost immediately on their arrival, the Vigors wren flying from the bushes to my hand while I stood in the open outside the glade, then Brownie sitting on my hand eating worms, a dozen or so other kinds of birds--
Hawk effect. including the Varied thrush--and they were able to note the effect on the birds (all disappearing) when a Sharp-shinned hawk soared above. Later in the day this hawk (presumably) suddenly darted out of a tree and flew 3 or 4 feet over my head. There were several other alarms during the day, one caused by a cat.

G inspects lath house.

About 5:30 P.M. Greenie inspected the interior of the lath house and suddenly darted out running like a road-runner. Brownie approached the dormitory tree, near which I stood, and took about 10 minutes to work his way up to his customary roost. I waited to see what the elusive Greenie would do. In a few minutes I saw her about six feet from me in the same tree (I had neither heard nor seen her approach). She seemed entirely unconcerned by my presence, worked her way to within

a few feet of Brownie, directly under whom I stood, then flew away "entirely". That was enough for me for the time being. Brownie seems to just a little embarrassed by my presence when he is going to bed; but Greenie, I think, would strongly prefer my total absence.

Jan. 22nd.

"Nesting"

At 9:15 A.M. both thrashers were much interested in the site of nest No. 1, but Brownie and the wren came to me at once.

A general alarm.

At 9:20 there were about a dozen birds in front of me within a semicircle of about 15 feet radius: Thrashers, Fox sparrows, one Hermit Thrush (I tossed a worm to him, which he ran for, but B beat him) one wren, Spotted and Brown Towhees, Golden Crowned, Gambel and Song Sparrows and "the" white pigeon. Suddenly there was an alarm call of ^{except the pigeon,} the Brown Towhees and every bird, bolted to cover. I could not see ^{of any other bird} feather, and there was no local sound except that made by a large fly,

Birds hide.

Freeze.

Odd groupings.

for about 5 minutes, then I was able (not moving from my chair) to ^{on the ground} see the ^{group, 20 feet} ^{she} ~~the~~ Hermit Thrush and a Brown Towhee to my right, frozen stiff--all except G's head, which ~~he~~ moved constantly and warily from side to side--under the bushes. The pigeon kept his place about 10 feet from me, otherwise did not seem frightened. Next I saw Brownie directly in front of me, under the bushes, about 20 feet away frozen to the same extent as his mate, and soon I was able to see near him--all frozen stiff--the two kinds of towhees, fox and Gambel sparrows. For 12 minutes by watch, I could see no change of place by any bird. Then Brownie began to say softly: pée-low... weest

12 min. freeze.

The thaw.

(or something like it), constantly repeated. Greenie then made a swift dash of about 30 feet across the open and joined her mate; other birds began to shift their places uneasily, but remained in cover. Then a Fox sparrow ran out to the dish near my feet. I thought all of this time that it was just another of the foolish panics that Brown Towhees are always starting, as I could see and hear nothing alarming, when there was a sudden rush of wings, renewed panic amongst the birds,

Hawk darts in.

a vortex of slaty blue mixed with brown and white at the level of my face, followed by a long streak curving upwards toward my right as a hawk dashed between the bushes and me and made for the trees to the north. Undoubtedly a Sharpshin. The nearest bush in front of me was 5 feet from me, so he was not farther than that from me--positively--but I am certain that he was closer to me than to the bush, so, unquestionably, as he also had to fly under branches over my head that are not more than 7 feet above the ground and was on a level with my eyes, he was not more than 2' feet from my face, on which I could feel the wind. Too late, of course, I went to the house for a gun, and returned to the glade. The hawk or all came out at once, including the wren, which it not developed, had gone down into the chaparral. He came out, scolding, and sat for a moment on my gun barrel! (At last proving the essential accuracy of the hackneyed pictures of the cartoonists). Everything "loosened up" at once--the birds knew that the hawk had gone. Brownie jumped to my knee and I noted carefully that the underlying motive of his conversation--entirely calm and unexcited--was the pee-low phrase which he had been using while hiding. (O as in no). It will be noted that it was the timid Greenie that first broke into the open of all the birds assembled in the glade, but that she ran directly to her mate. (For protection?) Curiously enough, there was no greeting between them; I noted this especially, as it seemed to be an occasion calling for some display of emotion--notwithstanding that I did not suspect at the time that there was anything serious afoot. Also it will be seen that it was a Fox Sparrow that first came out for food i.e. that first returned to normal. It is clear, also, though I did not time it exactly, that after about 15 minutes, the birds were beginning to feel that there was no longer any ^{immediate} danger--a mistake on their part,--but that they were quickly assured that it had passed when the hawk flew away. The whole incident impressed me as being considered by the birds as

Hawk within
2½ feet.

Birds thaw.

Wren sits on
gun barrel.

B uses same
talk as
when hiding.

G first bird
to break
cover; runs
to mate.

Fox sparrow
first to
eat.

Birds make
mistake.

Impression
created.

nothing unusual; which, of course, as far as they are concerned, is probably a fact.

Jan. 23rd.

At 10 A.M. (It is now 10:15), I went to the glade--no birds there--a low fog or drizzling drizzle--I do not know which. Brownie came from outside without being called. As the chairs were too wet to sit in, I squatted on the ground and handed one worm at a time to Brownie, urging him to call Greenie. Between worms he would mount part way up a Baccharis bush and look fixedly toward the S.E. I kept urging him to call Greenie and finally he climbed up into the oak underneath which I crouched, about 3 feet higher than my head and about 8 feet behind me, turned his back to me, looked searchingly toward the S.E. and broke into a series of loud and melodious calls, working up into each gradually from almost inaudible notes and using many of the phrases already noted. He gave every appearance of concern as to the whereabouts of his mate and finally dived over the fence down into the chaparral as if looking for her. I then left, as no other birds came--not even the wren. There can be little doubt that he was calling his mate; whether I had anything to do with it is open to question; but the incident is altogether too pat, in my belief, to be entirely fortuitous.

I neglected to ^{make a} note yesterday that, while Brownie was sitting on my knee, his upper eyelids were frequently winked, often without moving the nictitating membrane noticeably, or as I think, at all. Apparently the thrasher is one ^{of the} birds that is an exception. (See Encyc. Brit. 11th. Ed., p. 967: "Of the outer eyelids, the lower alone is movable in most birds, as in reptiles,..."). The latest edition of this work, the 14th., is much more sketchy in its article on birds than the older one cited; evidently commercial considerations are becoming of more and more effect in this work as time goes on).

I induce
B to call
his mate(?)

B moves upper
eyelids.

Jan. 24th.

At about 9 A.M. I went to the glade; the usual scene followed with the two thrashers and the wren. B's talk was inarticulate and much was exchanged with his mate.

Cat No. 11 passes on. At about 10:20, very few birds could be seen and no thrashers anywhere. As I returned to the house, a black cat darted out from the bushes within about 5 feet of the thrasher feeding station at the oval lawn. I got the 22 calibre rifle, and after considerable careful search, saw two yellow eyes and a black mass concealed beneath a bush, and this prowler was added to the score.

Immediately afterwards I took a turn about the grounds. There were lots of birds coming from concealment. The glade soon swarmed. The two thrashers and the wren being among the first. Brownie, on my knee, talked volubly, using many phrases, among which were the "Chulk" of the combative quail and a plaintive sort of mewing. An excess of imagination might easily depict this as an imitation of the sound of the gun and the mewing of the cat, just departed! However, that cat had no time to meow. Even Greenie was talkative.

Varied Thrush. (While searching for the cat, a dead Varied thrush in full

plumage, was found caught in the wire fence, its beautiful feathers

Ants.

swarming with Argentine ants. Day before yesterday one of these birds was found dead in the driveway; blood had issued from its mouth.

The ants had also attacked it. The eyes invariably are first destroyed.

These birds have been unusually numerous here this winter and more approachable than I have seen them heretofore).

Jan. 25th.

About 9 A.M. neither of the thrashers could be found on the place, but the wren showed up promptly and followed me more or less from place to place. Greenie appeared in the glade, coming from the S.E., after about a half hour, took worms from me, then disappeared.

A thrasher could be heard--presumably in the distance--saying torpeeto, amongst other things. Finally Brownie's approaching scrip was heard from the S.E. and he came into the glade and jumped into my lap. I could not get a sound of any kind out of him at first, but Greenie followed him shortly and they conversed while he remained with me.

Persistent "nest- About 9:45 both began gathering twigs and fibres and carried them ing" action. Both busy. up into the old oak to a point about 2 feet from nest No.1 of last

year, i.e. from the place occupied by that nest. All of the material dropped to the ground as they attempted to place it. They then took turns in attempting to rearrange the growing twigs at that place.

While one worked at this the other would come down and either get more material, or else come to me for food. On one of these returns

New talk.

Brownie clung to my trousers just below my knee--something he has never done before and kept repeating in a low deep tone: wawk, wawk, sometimes either preceded or followed by a number of soft tsiks.

When I had given him the last of the worms, he was in no hurry to leave and became very talkative. He changed from the above motive to something that sounded like: Byurra-keet, byurrick with other phrases.

Strophe and Antistrophe.

To this his mate often responded: Peet-byouick, very softly. B then inspected prospective locations near the site of nest No. 3, trying out the strength and arrangement of the growing twigs with his bill.

(I assume this to be his motive). While doing this part of his conversation was made up as above noted with an occasional slurred: per-wher. Both repeatedly went back, alternately and together, to

the first location tried this morning. I could reach it from the ground. It was, structurally, a pretty good place, but had one or two twigs crossing at angles that would be awkward for the birds in case they should build there, and I bent them aside while the birds were scouting about on the floor of the glade.

These activities kept up for more than half an hour; the most

Sustained effort.

sustained effort seen since No. 5 was built, and one which seemed to be actuated by a definite purpose and not by a mere reflex coming into play at sight of a twig or on having had a satisfactory meal. On the other hand, however, it may be doubted whether there is actual intention to build at present. The selection of material was not systematic as evidenced by the fact that it consisted of fibre, large and small twigs and rootlets, whereas in actual serious nest construction, materials are selected in the order in which they are required. There is no doubt in my mind, however, that this episode at the least, illustrates an actual preliminary reconnaissance in selecting and testing prospective nest sites. Of course, it is very early in the season also, though spring, except by the calendar, is here.

Serious?

1:45 P.M. (Temp. 69). A few minutes ago I left Greenie with a twig looking up at the site most favored this morning. Both birds had just been getting worms from me, B talking on my knee very earnestly, seeming to ask questions which wound up with a long drawn-out, high-pitched w-e-e-e-e with rising inflection. Since I have been giving special attention to his intimate communications, it will be seen that they are, so far, practically never twice the same in their entirety; again emphasising the versatility of these birds in use of the voice.

B's talk.

Versatility.

Wren gets mate? (During the last two or three days, the wren has occasionally had a companion near him).

Jan. 26th.

B more disturbed by wind than G. At 8:30 A.M. Greenie was first to appear in the glade, making the chew call. Next came the wren, and several minutes after, Brownie.

A strong north wind was roaring through the pines. This seemed to disturb B more than it did G, since the latter came for worms at once, while B watched from the bushes repeating over and over again a sort of rattling phrase deep in his throat. When he finally did come,

B "rattles".

New phrase. this phrase, a new one, constituted the burden of his talk. Both birds appeared to listen intently to the wind and showed no nesting impulse; though the fact that there was a hawk about probably added to their concern.

Familiar talk. At 11 A.M. the two thrashers and the wren, in the glade, came at once for worms. B's talk sounded familiar, and, although I can not approximate it, was doubtless not new. Both birds looked for nesting material, got some and left for the dormitory tree, inspecting prospective nesting sites on arrival. These included the glass house--rather casually--and B's night roost, which was more thoroughly looked over by both birds; also the location of nest 5. They then left when the milk truck passed noisily.

"Nesting" At 4 P.M. Brownie came to me with plaintive squeaks, then carried a twig up to **Station C** (the place referred to in yesterday's notes as close to Nest No. 1). He dropped the twig, came down and got another, and for 12 minutes examined the place and sat in it. It is well sheltered from a strong north wind such as has been blowing nearly all day. Too bad that he can not understand human speech, otherwise I could tell him that, in a Sou'easter it will be a worse locationⁱⁿ than Nest No. 1, being farther out toward the end of the branch; and on a hot day, there will be practically no shelter from the sun. As I left at 4:20, he was just taking up another twig. (**Temp. 62**). I hope they do not build now--crickets are still scarce--and we are due for plenty of rain in the next 2 months.

Roosting. 5:36 P.M. (Sunst 5:25). Brownie and Greenie were both headed for the dormitory tree. B stayed, but G came out and into the laurel south of the tool house. A few minutes later he returned to the dorm. Both birds had settled there for the night, evidently.

Jan. 27th.

At 9 A.M. neither thrasher was to be seen about the grounds,

although the wren came promptly for worms. I was busy at other things until about 10:30, when I went to the glade. Brownie soon came down from the old oak, again with what appeared to be new talk. Greenie did not come, so I went to see if she was in the dormitory tree and

Ne talk.

G sitting in
B's roost.

found her sitting quietly in B's night roost, doing absolutely nothing.

I left her there and returned to listen to B singing undersong in the glade. In about ten minutes she came and jumped up into the chair by

"Nesting"

my side and had a good meal. Both birds then began to carry twigs to Station C, G not getting hers all the way there, but B succeeding.

This lasted a few minutes and both birds went into the bushes, so I

went to the dormitory. There was Brownie in his night roost working hard trying to bend the growing ^wigs of the tree in some way to satisfy him. This is now station D. It is roughly 18 inches from the site

Sta. D

of No.5, and in working there Brownie frequently rubs against the roof screen which is still in place as it was when the nest was there.

I left him still at work in D. Clearly no decision has been

Coincidence? made between these two stations. It is curious that one should be along-side of the first site selected last year and the other so close to the last place chosen last year.

Jan. 28th.

During the day I had little time to observe the birds. However in the morning, Greenie was the only one to appear in the glade for some time, an hour perhaps. On returning there, both thrashers and

"Nesting"

the wren came. This time it was station C that received their attention. Brownie carried up one long twig which he could not make stick, sat there thinking, then joined his mate digging, followed by long undersong.

Jan. 28th

A raw morning. (Temp. at 9:30: 46). Brownie was the only one

Long and to come to me. He then retired to the bushes for a long, varied under-varied music by B,

song. He then climbed into an oak, sitting inside of it, and continued his undersong. I went to listen to him, as the position and the undersong in such a position were unusual. I stood in the road about 8 feet from him and he continued very earnestly, looking down at me from time to time. For the first time he imitated very exactly the long, drawn-out call of the Varied Thrush, interpolating it frequently amongst his other phrases. A combination often heard was this call, followed by parra-keet, parra-keet, ca'-daw, or, sometimes, ca-daw-cut. The whistled phrase which can be fairly accurately set down in musical notation (see bottom of p.474) was frequently introduced, and, sometimes the last three notes of it only. He "called the dog" several times, imitated the sparrow-hawk, jay and flicker and used many of the 80 or 100 phrases of his own, previously noted. The song was practically

Imitates
V Thrush.
(New)

Try to incite
him to greater
efforts.

continuous for about 20 minutes. I tried, by talking, whistling, etc. to incite him to greater efforts. Finally he worked his way out toward me, dived over my shoulder to the road behind me and came for worms, retiring after each one to the ground beneath a hedge, 4 to 6 feet from me, and continued singing. Possibly he got tired of having me nagging him, for suddenly he stepped out into the road, and, for a

Full song on
ground.
(New)

few seconds, sang full voiced with astonishing power. I was really hoping that he would sing full-song, but did not expect that he would do it while sitting on the ground, which is, unless my memory is at fault, without precedent. If this was intended as a call for Greenie,

Brings wren

it did not work. However, it brought the wren immediately to get his share of the worms. B then shut up like a clam and fell to digging nearby. It is impossible to forecast what these thrashers will do under any given set of conditions. In a period of half an hour or so, Brownie did several unexpected things.

Jan. 30th.

Early calls.

This morning about 7 o'clock occasional loud calls and snatches of song were heard.

I went to the glade about 10. Brownie was the first to appear, coming from the outside. G followed several minutes later, and the wren still later. B was quite talkative and introduced for the first time, while sitting on my knee, a low, kissing sound.

New talk.

More nesting activity.

He re-inspected Sta. G, then a place in the same tree about 6 feet from it, which both birds have frequently examined in past Sta. E;

months, then a place about 10 feet east of there in another tree, Sta. F also often examined by Brownie before. At this place, as before, he worked at the growing twigs for perhaps two minutes and was joined by Greenie. He then went to the site of old No. 3 for the first time,

Sta. G where there are still 4 or 5 twigs of the old nest. He rattled these about for several minutes and was watched by Greenie who stood near him. This is about 10 feet from F. and is the best protected from winds of the locations which I have seen inspected this year. After this Greenie left and B retired to a branch in the same tree, where he sat quietly, talking to himself, and apparently reviewing the entire situation without reaching a definite decision, for he soon sailed by my ear as if I were not there and fell to digging in the glade.

Sta. E
Sta. F

Sta. G

B reviews situation out loud.

At 11:20 I went to the glade again to see if anything was being done about the nest situation. After finding no activities under way, I sat down, leaning well forward. Brownie, full of animation, ran to me out of the bushes, and made 2 or 3 abortive attempts to fly up on top of my head, decided otherwise and lit on one hand. After eating all of the meal worms, he darted off toward the dormitory tree.

Bathing when I followed, expecting to see him in Sta. D; but he was splashing in cold. the deep water in the Indian mortar having a soaking bath. (Temp. 48).

Feet usually
cold.

Although birds have high body temperatures, their feet do not necessarily partake of this temperature. I had just noticed how cold B's were, and this is frequently the case.

Long full-
song.

About noon almost continuous thrasher full song was heard to the west. The bird was finally located sitting on a fence post entirely in the open about 50 feet from my west line. I think it was Brownie, although he did not respond to call. He kept this up for about a half hour, then went down into the canyon to the west, where he continued singing for a long time. While sitting on the post, each individual song lasted from 2 to 4 minutes, by watch, and the intervals between songs were of only a few seconds duration. As a partial check on

the identity of the singer, Greenie was located singing under-song in the glade when the song to the west was first heard and Brownie was not to be found on the place.

Object of
song.

If the utilitarian object of this song is to warn other males that the territory is occupied, the selection of a site from which to sing was well made, as there is good thrasher territory to the west.

Mate for
life?

It does not seem, in the case of Brownie at least, that the object of full song is to attract a mate, for he and Greenie are now approaching together their second known nesting season, and are apparently as happy as ever. This favors the postulate that California Thrashers mate for life.

B in night
roost early.

5:05 P.M. Not seeing the thrashers about, I went to the dormitory tree. There was B sitting quietly in his night roost. When he saw me, he looked down at me placidly and wriggled his toes, but otherwise did nothing. As it was broad daylight, this was too early to go to bed, so I left, to return 20 minutes later. He was digging in the berry patch. After making a threatening gesture at a quail there, causing it to run away, he abandoned further work for the day and headed for his sleeping place about 5:30. (Sunset 5:31, Temp. 52).

Jan. 31st.

About 9:30 A.M. both thrashers were at the oval lawn, B running out for worms. I went to the glade and they and the wren came too. Both thrashers then wandered off after the usual performance.

Nesting?

I went to the dormitory tree and found Brownie sitting quietly a few inches from Sta. D. partly under the roof. Soon he went to old No. 5, of which 3 or 4 twigs are left, further under the roof, and carried one of them to the new prospective location. I then left to make this note. Perhaps this incident throws light on the question often asked as to whether these birds ever use old nesting material taken directly from the nests. However, the few twigs noted above do not in any way resemble a nest.

Nest support.

12:30 P.M. About 11:20 I placed a piece of about 2 inch hexagonal mesh screen in the position occupied by Nest 5 and fastened it in place, hoping that Brownie might consider it a suitable support for a nest, better than Sta. D. One great advantage, though possibly not so regarded by the thrashers, is that it is sheltered from rain. I went to the glade to see if I could awaken nesting

B disregards

activities by giving the thrashers worms, about 11:30. The effort was successful, and in about 5 minutes, B headed for the dorm with a twig, which he carried and placed in Sta. D. He saw my structure and proceeded to crawl under it to pull out twigs which he carried to D. He also attempted to remove from it a small branchlet which I had woven into it as a stiffener and "starter". He worked about D for about a half hour, rather energetically, making short excursions for twigs, some of them being placed in D. At times he appeared to contemplate my device. I doubt if he likes the roof overhead. Greenie did not participate in his activities. I believe that they are seriously intended and can no longer be considered as random reflex actions, though it is too early to determine whether a final selection

of location has been made. I do not think he is entirely satisfied with any of the places examined and tested.

February 1934

Feb. 1st.

About 9:30 I went to the glade; the two thrashers and the wren came for worms. The thrashers then carried nesting material to Sta. C (in the old oak). After rustling about there for several minutes, they went to the dormitory tree, and Brownie first inspected the foundation which I prepared yesterday. He then began work just above it at D (his night roost). I left him there, as I had to go to S.F.

I returned about 3:15. B&G were both at the oval lawn (also the wren). The thrashers carried on an almost uninterrupted conversation with each other, consisting mostly of something like:

Talk.

Tchik, tchik, tchik, tu-ree, tu-ree?

B kept this up while on my hand. On the two occasions when I have seen these birds today they have been very bright and lively; B especially not hesitating to fly up to my hand while I was standing up.

Feb. 2nd.

Hawk

The thrashers did not respond when I went to the glade about 9:30 A.M. and I could not find them on the place. There was a hawk lurking about all of the morning and at one time it was seen running on the ground, through the bushes after the quail. Some of the quail froze in plain sight of the hawk, but none were caught, as the latter flew off when it saw me.

Now 2 wrens

(There were two wrens in the wood-pile, one of them the tame one, came for worms, but the other would not.

I did not look for the thrashers again during the forenoon, but about noon both of them were in the glade.

Feb. 3rd.

Up to 10: A.M., the thrashers were not seen or heard.

A day off, but 7:07 P.M. The thrashers seem to have taken a vacation all day.
home to roost.

I looked for them several times; but when I went out just now and turned a flash-light on Brownie's night roost, there he was. I did not look for his mate, except casually. I do not recall such a long absence as this during the time I have had the birds under observation, though the notes may show otherwise. A hawk (or hawks) has been seen several times today raiding the shrubbery at neighboring places, and it may be that the thrashers have been unwilling to cross the open while it was around.

Duck talk
was sprig-
like.

The duck-like theme used by B&G in notes of Jan. 14th. (P.559) appears to be nearest like that of the Sprig. The ducks are very tame on Lake Merritt in the winter and there was no difficulty in getting a mixed flock of widgeon, sprig and coots packed solidly at arm's length from me, scrambling for the corn offered. Some of the ducks of both kinds called frequently, but it was hard to locate the individual. Their calls are entirely different.

Feb. 4th.

At 9 A.M. there were no signs of either thrasher about the place, and it looked as if yesterday's performance might be repeated. However, as I passed by the glade at 9:45, I heard a soft call behind me, and B&G stood under the bushes looking out at me solemnly. Both were very tame and friendly, also hungry for worms and talkative. After eating Greenie, who this time, had been the first to come to me, picked up a lot of soap-root fibre and carried it up to Sta. C in the old oak. B followed with twigs, an illogical procedure, showing that their nesting impulse is not yet coordinated and perhaps has suffered a relapse.

Nesting
impulse.

Julio explains My Filipino boy, Julio, whose attitude towards these birds is even more anthropomorphic than mine, has advanced a new hypothesis to account for incidents like the foregoing. His present contention is that the birds think I will not give them worms unless they work, hence they are just fooling me! Perhaps he is right!

nesting
complex.

"Impulse"
continues.

At 10:25 the thrashers were still busy at Sta. C, but as soon as I appeared at the glade, Brownie thrust his head out through the leaves at the "nest", took a good look at me, and came for more worms, soon followed by his mate, both talking volubly. They then gathered a new supply of nesting material, but, it will be noted that the preceding impulse had not subsided.

Screen at C I fastened a screen arrangement near C similar to that placed at the site of old No. 5.

In the afternoon Mr. Hopkins called to see the thrashers. Both birds came, Greenie hovering about the outskirts, but B after some hesitation on account of the visitor who sat beside me, jumped to my knee as usual.

G's talk. He talked a little. G kept repeating the phrase gurkit, gurkit. Neither showed signs of nesting activity.

Feb. 5th.

11:15 A.M. (Temp. 57, variable breeze; looks like rain).

B&G have been here all of the morning, digging on the slope above the orchard a large part of the time, rolling down stones and dry clods.

B's talk. B's talk was again new, at least to my perception, base on a low pitched meaning sound followed by higher pitched interrogatory syllables. They

Alarms. were afraid of open spaces--hawk signs. There were two or three minor alarms while I was with them in the glade, that sent them scuttling into the bushes. B did not even like to cross the small open space in the glade at first, and then to reach me kept carefully inside the bushes until he got as near as he could without exposing himself, then flew directly to my knee contrary to his usual habit.

After he judged that there was no further cause for alarm, he inspected Sta. C again, but ignored my handiwork a foot or so away.

G's eye-stripe. G's superciliary stripe is still more conspicuous than B's and there is no evident change in eye color.

At 5 P.M. Brownie was in his night quarters--unusually early.

Feb. 6th.

Early song. A little rain during the night. Early song heard in the morning, shifting from place to place. Yesterday the same.

About 9:30 A.M. the thrashers were not in evidence. A wind from the S.E. probably keeps them in cover.

Talk About 10:30 the gurkit call sounded from the bushes behind me, so I went about 100 feet to the glade and sat down. Both birds followed. B based his talk on the same gurkit theme.

Feb. 7th.

8:30 A.M. Raining. Both thrashers came immediately for worms in the glade. B's talk was almost entirely made up of the phrase:

Talk Cair'-ra-cair'-ra-cair'-ra

repeated rapidly, the Rs strongly rolled. When I first heard it, I looked behind me (although B was in front of me) as I thought the sound came from some other kind of bird nearby in that direction. I half expected to see a varied thrush, although the phrase is not, I think, one of his. On this occasion Greenie was the more eager for worms and I let her have all she wanted directly from the box in my hand.

Ventrilo-
qism. **Song in** 2 P.M. Raining heavily. A short burst of thrasher song was heard out-
rain. side the window. I opened the window and called, but there was no response and the bird could not be seen.

Feb. 8th.

Early song. It rained nearly all of yesterday and during the night. In the early morning loud thrasher calls were heard and bursts of song moving from place to place.

At 9 A.M. the thrashers were absent, but the wren came promptly. I went to the glade at 10 and the thrashers soon came in from the west, hungry and talkative. Only the bases of their tails showed the effect of

"Nesting" the rain. After exhausting my local supply of worms, both gathered

nesting material of mixed character. B took his to the location in the old oak, Sta.C, and G hers to the dormitory tree and placed it at B's night roost, Sta. D. Brownie then joined her there, as I discovered on arriving, and both were sitting quietly a few inches (at 10:15) apart absolutely without motion. 7 minutes later I had another look at them and could not see that they had changed position at all. At 10:18, still no change. At 10:23 one bird had gone. I heard it calling down in the chaparral. The other joined it, but in a few minutes both were back again at Sta. D, where I left them working on the growing twigs. At both of these stations they have ignored my foundation work of wire screens. (Temp. 55, intermittent sunshine)

At 11:08 I went to Sta. D, Brownie, about 4 feet over my head, was struggling to get a loose twig up to the nest site, walking across my foundation in the process. I went off 40 feet and sat down. Both birds went in and out of the tree frequently for several minutes, at times carrying twigs up. I could hear them shaking the branches and the ends of the branches above the wind screen plainly moved. One of them came out with a long twig in its bill--from the nest--and sat on the screen looking off over the country. It then returned whence it had come and the branches again began to shake.

When it had quieted down, neither bird was to be seen in the tree. I went to the glade and sat down. Both birds came out of the bushes without being called and, for a short time--also for the first time--B sat on one knee and G on the other. B's talk while there frequently verged on song.

This session ended with renewed nesting activity, but this time it was Greenie that took a twig to C and B took his to D--just the reverse of the preceding episode. However, as before, both ended up at C. and at 11:25 they were working there. From the ground nothing can be seen at either place as a result of their efforts.

Thrasher on
each knee.

I do not know when the normal nesting season of the California Thrasher is supposed to begin, but if last year's behavior of these two birds may be considered to represent their norm, then serious activities are due about the third week of this month.

While their present activities are apparently accomplishing nothing tangible--having been really scattered over several months, as these notes testify--they seem to be less diffusive now and showing some signs of coordination. If we have our usual February warm spell, I have little doubt that matters will be brought to a sharp focus.

further

4:07 P.M. No_^ observations were made until 4 P.M., at which time I happened to catch sight of both birds running toward the dormitory tree. They climbed up into it and were seen working on the growing twigs at Sta. D. In this case their action was entirely without the stimulus of food from me.

Feb. 9th.

At 8:15 A.M., as I passed by the dormitory tree the thrashers were heard talking. However, I continued to the glade and B came to me at once with new talk, in which a peculiar, low-pitched sound predominated. The nearest it can be approximated is:

Yo-o-i-i-n-nk;

sometimes with a soft pit following and a low ee preceding. The effect was one of pleading.

About 9:30 his talk was again different. This time he worked for a short while at Sta. C, Greenie not being interested. By ten o'clock he had transferred his attention to Sta. D. I stood almost directly below it and watched him trying to make a twig "stay put"; but he could not do it, and it fell at my feet. He came down and picked it up. Although there were many others there, he wanted the same one. (I think these are twigs that have been dropped,

as there is nothing in the "nest"). He tried to take the twig back via the glass house route; but it again fell to the ground. He abandoned it and examined numerous others, seeming to try and crimp them in his bill. The sound of this action was plainly audible. None of these satisfied him. Next he tried to pull apart a fragment of old nest No. 5 lying nearby; but gave that up also and wandered away.

First twig is
the difficult
one.

In all of these endeavors it is the first twig that involves the most difficulty in getting a start. It appears to be a matter of luck whether it will stay or fall down. A twig with no crotches or branch-lets almost invariably does. Even those so equipped usually do. If not at the time of the attempt to place them, at any rate, sooner or later. Unless the site is well chosen, it is somewhat of a miracle that any of them stick. By keeping at it persistently, one will stick in the end, of course. This increases the chances of the next one remaining in place, and so on, until finally the problem, almost entirely by chance as it appears, solves itself.

Wrens nest-
ing?

(About 10 o'clock two wrens were going in and out of the house in which the brood of six was reared last year. One of them, I think, is the cheeky one, who has been especially keen on following me up this morning while I was watching the thrashers. Whether it is this one will, no doubt, appear in due course.)

Wrens together,
one carries
fibre as it
comes for
worm.

At 11:10 I went to the dormitory tree; the thrashers were not there, but the two wrens were. One of them worked down through the branches toward me carrying a soap-root fibre. When I produced a worm, he dropped to my hand releasing the fibre at the same time.

It looks as if "my" bird had a mate and the next step is to build a nest.

The thrashers were down on the bank. When a truck going by frightened them, they came up and "did sun-fits" along-side me, B so close that I could have stepped on him, for about 25 minutes. G was about a foot from B and I had an excellent opportunity to compare the

Eye color
unchanged.

colors of their irides. There is no change in either bird. When they got drowsy, it was easy to see that they moved their upper eyelids independently of both the lower and the nictitating membrane. The latter is thin and white, the upper lid is thick and gray. There were several towhee alarms during this period. At one of them B moved

Upper
lid move.

Like company? still closer to me, and I believe I am justified in assuming, from this and other similar incidents, that these birds feel a certain amount of security in my presence; on this occasion, more especially, because neither of them at any time showed any interest in me as a food bearer.

Feb. 10th.

No early song.

No early morning singing was heard. There is a powerful wind from the north.

Reaction to
wind.

At about 8 A.M. Brownie was in the bushes in the glade. He would not come out to me (only 15 feet away) although there was no wind to speak of in the glade. He would come to the edge of the bushes nearest me and sing. I could see his throat swell and catch some of his louder tones above the roar overhead. As noted before, a steady wind, does not frighten these birds so much as a gusty one, and often seems to stimulate them to song. When I went to him, he took worms readily, but would not come out more than about a foot beyond the ends of the branches. No other birds appeared. No nesting impulse was noted; which is not surprising, especially when it is recalled, that, under similar wind conditions, the thrashers were extremely reluctant to go to nest 5 even when it contained young

Late sunrise needing food. (Temp. 46, sunrise 7:06, but due to the hills to the east, actual sunrise at this point is later; today, about 24 minutes. The delay varies at different times of the year, at this point, due principally (on account of the shifting of the point of sunrise with change of season) to the irregular profile of the horizon and the varying distance of the horizon).

Reaction to a
dead hawk.

At about 11:30 Mr. Sampson and I went to the glade, the latter carrying a small Sharpshinned Hawk that he had just shot in his garden. The thrashers came to the edge of the bushes, but would not come out. As the wind was still blowing hard, they probably would not have come out anyway, as just noted; but Brownie plainly showed that he saw the dead hawk and was nervous about it. I took the hawk to the edge of the bushes and tried to get the thrashers to come for worms. They would approach within about 4 or 5 feet of their dead enemy, but no nearer. The question in my mind was whether their curiosity about dead animals (several times mentioned in these notes) would triumph over their fear of hawks. The wind, however, introduced a disturbing factor which made the test inconclusive.

The dead bird was as small as any I have seen of this species; certainly no larger than Brownie, and perhaps smaller; probably a young male. A few minutes after this another one was seen just clearing the tree tops.

Feb. 11th.

Early song.

There was some early morning song. At 8 o'clock, judging by the sound becoming fainter, the thrashers were just leaving the place on an expedition. In an hour or so they were back again and the usual scenes were repeated. There was a little carrying of twigs, but not much.

Black-billed
Magpies.

(During the course of the afternoon, a gardener employed at one of the homes here, brought two Black-billed magpies, whose owner was leaving the state and wished to have the birds find a good home. I undertook to look out for them and see that they got it, some place. They are reported as being taken from the nest last year, east of the Cascades, near Yakima, Washington).

Feb. 12th.

Full song in
distance.

At 8 A.M. full song was heard in the distance. Following up

I located Brownie (supposedly) in the top of a cypress at Robinsons, about 250 yards away, singing at intervals. He would not come down and come home.

I place "starting platform" at Sta. A. Shortly after, both thrashers came into the glade, where the usual scene, followed by desultory action at Sta. C followed. When this ceased I examined the place carefully and found but one loose twig at the site. I decided to see if they would accept a starter in the form of twigs placed by me, as they had rejected the screen placed a span away. I tied a forked twig in the exact spot which seemed most favored, so placed as to give a foothold and a place of lodgement for the first twigs. I also cleared out above it slightly to give head room, then went off on another errand. On my return, about noon, both thrashers were working there, using proper starting material, and not a heterogeneous mixture, seeming to indicate by this fact that they meant business. When I sat down, both came to me for a good feed, then returned to work actively (and made their contributions stick repeatedly), selecting twigs carefully and of large size. A little later they were still at it.

It works.

Real building begins.

Make good showing.

1:30 P.M. Still at it. Brownie does not hesitate to place twigs within about 3 feet of my face, which is the nearest I can get without a platform. They have already, today, made more showing than in all of the many days preceding.

Speculation. If this is to be "the" nest, it looks as if they might really have started much earlier in the season if it had not been for foundation difficulties. On the other hand, however, today might be "the" day. If so they have barely missed another thirteenth something or other.

Reaction to dead mouse.

About 5:20 Dr. Reynolds suggested that we test the thrashers' reaction to a mouse just caught (and killed) within our hearing. Consequently we took it to the glade. The thrashers came in a few minutes

B's behavior. Brownie approached it warily where it lay on the ground, aimed a peek at it, which missed through excess of caution, and beat a hasty retreat

to a short distance, as if pursued by an enemy. The next time he pecked it fairly, with spread tail and wings, the effect being to drag the mouse nearer to him, whereupon B jumped straight up into the air as if in panic. This was repeated several times. I then tossed the mouse to him where he stood about 4 feet away, expecting that this would cause him to retreat in a panic. Curiously, however, he appeared to mind this less than when he moved the mouse himself.

G. takes it.

Greenie, meanwhile, wanted to take a hand and was much calmer about it. She and her mate argued a little about it, then she took over, not dramatizing the affair as Brownie did, merely flinching a little at first and finally hammering it in a businesslike way as if to dismember it. Gradually she worked it further into the bushes and disappeared with it, evidently with the intention of trying to eat it. However, we were unable to see the final outcome. The contrast

Curious contrast in behavior of two birds-- unexpected.

in the attitudes of the two birds was very marked. B nervous and excitable; G, though wary, calm and phlegmatic. This is directly contrary to what might reasonably ^{have been} expected, based on their observed attitudes toward human beings over a long period of time; though it does remind one that it was the "timid Greenie", of all the birds ^h hiding from the hawk during the general alarm ^a of Jan. 22nd., that first ventured out into the open, even if it was only for the purpose of joining her mate.

G's timidity partly indifference.

Greenie is still the more timid bird in the presence of human beings; but, as I have thought for a long time, some of the apparent timidity is due to indifference.

B returns to building.

After B abandoned the mouse entirely to his mate, he went up to Sta. C once or twice, while Greenie was still engaged.

Feb. 13th.

Early song.

There was a little early morning song. During the forenoon

Site too crowded.

Brownie worked at Sta. C fairly frequently, but the exact spot which he likes the best is too crowded, even after the clearing that

I did there. It is not big enough for him, even with no nest.

I shift
framework.

During one of his absences, therefore, I undertook to shift the the framework a few inches and open it up more inside. If he accepted this it would shift his nest about 9 inches. While I was working there, he came back and inspected my work calmly, standing on it, and shifted two of my twigs an inch or two! I then handed him a worm which he accepted readily. On his next return, bearing a twig this time he placed it in the new location and did not go into the crowded corner. It looks as if he would accept the change.

B helps?

He accepts
the change.

B doing all
the work.

About 4:30 P.M. I went there with a visitor and noted that quite a bit more had been added. All of the work that I saw done today was by Brownie, Greenie seeming indifferent.

Hawk.

About 5:30 both thrashers came out to the edge of the bushes in the glade and would only dart out to get a worm and then retreat rapidly. Even this they were reluctant to do. The wren behaved similarly. In a few minutes a hawk lit in the top of the old oak. Evidently the birds knew that he was about, and this was the cause of their timidity.

B not at night
roost? At 6 B was not in his night roost. Thinking he might have shifted to the new nest, I looked for him there, but could not see him.

Feb. 14th.

Morning work.

7:50 A.M. When I went to the glade at 7:30, the thrashers were working on the nest at Sta. C. They continued for several minutes before coming for worms. After eating they went back to work, Greenie, this time, doing her part. This site seems definitely adopted for the first nest of the year. It has, naturally, on accounts of its location at the same point as Nest No. 1, all the good and bad features of that site.

G helps.

About an hour later Brownie alone was working, G foraging for food and including me in her itinerary. She then supplied one or two twigs.

B working
faithfully.

At intervals during the forenoon, I visited the nest, each time finding Brownie either working in it or getting material, very friendly and hungry. He has abandoned the cramped corner and adopted my sub-structure, apparently with enthusiasm. The nest is growing rapidly and, in ground plan, is like a figure eight with one loop about four times the diameter of the other. The small loop is Brownie's work antedating the acceptance of my plans.

B takes twigs
from hand and
uses.

1:25 P.M., as I approached the nest, Brownie flew up to my hand while I was still in the road. When he had had all the worms he wanted, he took three in his bill to the nest, where I was just in time to see him give them to his mate. A few minutes later, when he again returned to the nest, I handed him three twigs in succession, each of which he took from my hand and incorporated into the structure.

Feeds G.

Second annual nesting cycle. This is the beginning of the second observed annual nesting cycle of this same pair. The first actually observed work on Nest No. 1 last year was on Feb. 19th. I am inclined to think that work actually began earlier. Notes of Feb. 12th., 1932, singularly enough, show material being carried up into this same tree for the first time.

Generaliza-
tions.

Indications to date tend to show that::

- (1) This pair is probably mated for life, and
- (2) February is their normal time to begin nesting in earnest.

So far the male has done nearly all of the building on this nest.

There is very little singing at present.

Defense of
nest?

During the last three days, Brownie has shown a little intolerance at times, toward birds eating from the dishes in the glade or in that part of the tree where the nest is located--perhaps 5 or 6 times. He has been very mild about it, however.

Feb. 15th.

Everything wet. Rain during the night and some early morning singing in the rain. About 9 A.M., raining, the thrashers looked pretty wet on the outside. **Work proceeds** This did not keep Brownie from working on the nest actively between showers. Greenie helped a little, but not much, during the rest of the morning. The nest was dripping wet and so were the twigs added to it. **Shape altered.** It is no longer shaped like the figure 8, but like a large oval, as Brownie has filled in the re-entrant angles, making it a huge affair like a bowl.

My next contribution will be a roof and a wind screen.

Brownie worked well during the rest of the forenoon, notwithstanding the showers. **Greenie eats a newt(?)** Greenie helped a little. She captured one of those very long, thin, wormlike newts(?) and ate him piece by piece, B continuing his work without interest in G's doings.

During the afternoon, on account of visitors, I had little opportunity to observe the birds. (See p. 594 at #)

Feb. 16th.

Gathering lining only. At 8:15 A.M. (after a night of frequent rain) both thrashers came to me promptly for worms, both quite dry. They both gave me a mild surprise by gathering nothing but lining material, and my first thought was that, after all, this nest may be only another of their reflexes. However, when I looked at the structure, and saw that it was so dense that I could only get a glimpse, now and then, through the chinks, of a worker inside, I realized that they have been making rapid progress and lining is in order. **Rapid progress.** For this pair, at least, this is unusually fast work, for which Brownie deserves most credit.

If the egg machinery is operative, we should have eggs in February.

To facilitate matters, I gathered soap-root fibre and placed it

on the ground near the nest. Amongst this material was part of the lining of nest No.5; this was sterilized by boiling. The birds accepted this material at once; Greenie especially, taking it in large batches. When it comes to lining, she seems to do as much work as Brownie.

Platform.

Lining pattern.

About 10 A.M. I began building a platform at the nest. The birds minded this very little. I noticed that the lining programme was carried out in this way: First one bird took up material, placed it and formed it with its breast, then usually sat in the nest until the other arrived with a load, when that bird went through the same performance. It seems to me that sitting is part of the process, as previously noted, of giving the lining a permanent set. The fibre, being damp, readily assumes the desired curvature.

Roof.

When the platform was finished, I placed a roof of "flexible glass" (wire screen glazed with a film of cellulose acetate) overhead to keep off the rain. This was a noisy and disturbing operation and the birds did not work while it was under way, but stayed in the vicinity, talking and sub-singing. I deferred placing a wind-screen in order to avoid too much interference at one time. When it is installed, the birds will be comfortable and dry in all kinds of weather. After finishing for the day and cleaning up the debris, I sat down to watch the effect on the birds of the new addition to their home.

No fear of structure.

They came within a few minutes, got worms from me, then proceeded to dig around the footings of the scaffold and ladder in the earth I had turned up. B took up the first load, following the usual route up through the branches. G took her load up my ladder, then mounted by successive stages on various parts of the structure until she was opposite the nest, then jumped across to it. A very easy route, and quickly discovered. Neither bird appeared to notice the roof; so it looks as if I had got them under roof from the start.

Talk taking
articulate
form.

They are doing quite a bit of talking to each other now, when they meet at the nest or elsewhere, and it consists largely of melodious song phrases, such as have been already recorded, for example: Pit-yourki, tork-peelya, tor-keeta, wee-ou-hickey, etc. This seems to presage active courtship at an early date and, by precedent, accompanies the final stages of building a nest.

B comes to nest
to observe me.

At 5:30 I went up on the platform--no birds there or in sight. However, Brownie climbed up in a minute or so--true to past form--settled in the nest and looked at me fixedly as if to say: "Well, what are you going to do about it?" I have always felt that this action of his was for the purpose of keeping an eye on me as a portion of his duties in defending his home. This time I handed him soap-root fibre, which he accepted after some hesitation and put in the nest. It seemed to me that his hesitancy arose from the fact that he was there, not for building, but for guarding, and he needed time to readjust himself to the unexpected--the unforeseen.

Accepts
lining from
me.

Courting(?)

About 6 I found them near the north boundary somewhat mildly flirtatious. At 6 B went up to his accustomed place in the dormitory tree, followed by Greenie, at 6:03, going to her place in the same tree, about 6 feet from her mate. The pattern is taking form.

G eats contents
of an acorn.

Once during the afternoon, Greenie was pretending to be busy near my feet--but really waiting for an invitation to have a worm, which unfortunately I did not have--a rare occurrence--when she discovered a cracked acorn. She hammered it vigorously on the ground and ate its contents after breaking them up--adding another known food to the thrasher menu.

Crippled Varied
Thrush.

(I caught a beautiful Varied Thrush that had hurt its wing and was unable to fly. It made no outcry and did not struggle after I caught it. It was in full plumage and seemed in good shape, with the exception noted. I shall turn it over to Mr. Brock, as it will be a cat or hawk victim here. I put it in a cage temporarily, with suitable food and water. It fluttered for a few moments and was then quiet. When I put a bath dish in, it pecked it angrily).

Feb. 17th.

Varied Thrush. At 8:15 the Varied Thrush was sitting quietly in his cage, having evidently just had a bath. The soft food was gone, and was either eaten by this bird or by a mouse; probably by the bird, for when I filled it again, he went to the dish, but did not eat in my presence. This is a surprisingly gentle bird and does not flutter about when I approach the cage. He was later turned over to Mr. Brock (today) apparently reconciled to his new conditions, and eating meal worms and soft-food before leaving.

Many birds gather.

At 8:30 there were no birds in the glade at all, but they started coming in as I filled the dishes with the suet mixture. When I sat down, B&G and the wren came at once, the former to my knee, G to the chair by my side and the wren flying down to my shoulder. By this time there were perhaps 20 birds within as many feet of me; some, besides the thrashers and the wren, eating from the dishes about 5 feet away. These consisted of the usual assortment, but in addition, Juncos which have not been coming to this part of the grounds often.

Nest practical-ly finished. The two thrashers went to work on the lining as soon as they had fed. The nest could be finished within a few minutes if the birds cared to do it.

B watches me at nest.

During the rest of the day, practically no work was done on the nest; but if I went up to it, Brownie, if near, would come up too and sit in it. Both went to roost about 6, in the usual places.

Feb. 18th.

Again watches. 8:30 A.M., Brownie present in the glade. He did not offer to work on the nest, but when I went up to it, came up also to keep an eye on me. When I climbed down, so did he, then wandered off. (Julio says they were working earlier this morning).

12:30.P.M. Up to this time I have not seen them work today. Even when fed, they have not gone to the nest, except as noted.

Work a little. 1:30. They have changed their minds about working. For several minutes they were quite busy, especially Brownie, drawing upon a

Greeting with song. supply of soap-root fibre which I had taken from an old Towhee's nest. When they met in the nest, the greeting consisted of soft song.

Roosting. 6:09 P.M. At 6:01 both thrashers climbed up into the dormitory tree and settled themselves for the night. Time of going to roost follows the time of sunset fairly closely. (Sunset 5:50, temp. 55).

Little work. Several times during the afternoon they worked a little on the nest; but it is clear that they do not consider the matter pressing, and further work is probably not absolutely essential, although the nest would be improved by putting a little more lining in the bottom.

They eat a millipede. I tried them out with a Thousand Legged Worm (Millipede). I expected them to reject it on account of the disagreeable odor that these animals emit when disturbed. Brownie took it at once, ran off with it, and began to break it up. He did not seem very enthusiastic, and abandoned it in favor of Greenie, who broke it up into smaller sections, some of which she swallowed; I could not see whether she ate it all or not.

Unexpected endorsement of undersong. One of my visitors, referred to in Feb. 15th. note, who called on business, was a man who had no occasion to be aware of my interest in birds, and I was not aware that he ever even "saw" them. He happened to notice some quail outside the window and immediately was much interested and volunteered the remark that I ought to have a pair of thrashers here and then I would have some wonderful music. (near San Simeon) He went on to tell where he had heard them, and that he considered their song the finest of all our birds. On questioning him and showing him pictures of the thrashers here, it developed that he referred to the California Thrasher and had only heard their sub-

Independent confirmation of ventriloquism. song, not being aware that they also had a marvellous full song. He also referred to their ventriloquism. Altogether this struck me as fine confirmatory evidence from an independent source bearing upon my own observations.

B&G freeze.
Autigiro and
hawk.

On one of my visits to the glade this afternoon, I sat and watched B&G preening in the bushes in front of me. They looked up (all but their heads) in the air and froze, but did not retreat, and began talking to each other in very low tones. I looked up and saw an autogiro high up overhead, but the birds did not seem to be looking at it. In about 2 minutes a hawk flew over at about the height of the old oak. Brownie then came to me repeating two new syllables, sounding like the high-pitched bark of a very young dog, over and over again:

Row-hoo, row-hoo. (The o as in now)
always

Believe talk
has definite
purpose.

I am convinced that the talk of these birds is not, the mere operation of an involuntary reflex; but that it ^{often} has ~~axdefinite~~ intent behind it (however obscure it may be in the bird's mind) and frequently especially that it is intended to convey a message, when it is not imitative.

Speculation on
intelligence.

With no background in any of the life sciences to guide me, I am unable to attribute the extraordinarily extensive vocabulary of these birds (compared with Brown Towhees for example) to anything but superior intelligence, and if there is a difference in intelligence there must be intelligence there!

Feb. 19th.

B guards
nest(?)

Heavy rain during the night and more due. On entering the glade at 8:30, Brownie, the only bird present, flew up to my hand. When I went up to the nest, finding it perfectly dry under its roof, B as usual, came too and popped into it. Although he is undoubtedly guarding it, -I think, -his attitude is not at all belligerent and he readily accepts offered worms. When I left, he stayed there and uttered a few musical calls.

Full song in
rain.

9:45 A.M.. Raining, and one of the thrashers is singing full song in the direction of the glade.

Song moving
about.

12:10 P.M. There was so much song moving from place to place, that I went out at 9:50 to see what it was all about. The birds were

UNUSUAL
BEHAVIOR.B is pursued
by G.Both birds
sing full
song.Pursuit
continues.G only one to
come to me.

in a pine tree on the north line, one following the other doggedly from branch to branch. The pursuer was almost silent, but the pursued broke into loud song phrases at intervals. If this was one of my birds chasing a stranger away, the singing seemed to come from the wrong bird. They then dived into the thicket below the wall at the west end of the place, and all was quiet. I went down there and both birds, looking very long and wild, flew up toward the house. I found them, by sound, near the Sparrow-hawk pine, one still chasing the other. The latter ran rapidly to me in the open about 75 feet. Much to my astonishment, Brownie was the pursued. As he reached me, Greenie chased him away through the bushes and berry patch, but he circled back toward me around a lath house and I lost sight of him for a moment. I took one step and he popped out from under me, Greenie still after him. Once again near this same place, he seemed to come to me for safety, only to dart away again with Greenie after him, not, however, until he had sung loudly about 8 feet from me. All of this seemed to me exactly the reverse of what it should be-- the female pursuing the male. This continued for more than 2 hours, with intervals during which one or the other perched on a high point and sang loudly. Both birds were positively identified thus in full song, and once, when they were momentarily separated about 100 feet, both sang simultaneously. They went from end to end of the place and from side to side and entirely out of the property several times, also climbed up and down trees. Whenever near enough for me to tell them apart, G was always the pursuer. Strangely enough, I succeeded four times in getting one of them to take a worm from me. Each time it was the "timid" Greenie. B would look at me with a wild look in his eyes and seem to want to come, but would always run away as his mate approached. They were both much excited, especially Brownie. G, as noted, was cool enough to get a worm now and then. Just before I left, the evolutions centered about the glade, where

I could follow the action most of the time. Most of it consisted in dodging in and out of the bushes on the ground, B constantly trying to keep on the opposite side of a bush from his mate. Yet when it was B singing on a high point, he would locate her by hearing her response, and dive down to her, when the pursuit would again be taken up by her. G used the kā-dah of the hen frequently in her full song. It was harsher than B's rendition and therefore a closer imitation. Neither bird went near the nest, and when I left, the action still continued.

G's hen call
harsher
than G's.

Female the
aggressor.

I suppose this is all preliminary to egg laying, but I am surprised to find the female the aggressor.

Chase continues.

1:30 P.M. The chase was still on. G detached herself from the vortex long enough for a worm, but B was too anxious to keep away from G.

Ditto.

5:25 P.M. Throughout the whole afternoon the chase continued, though at about 3, B had eluded his mate long enough to come and get some worms. When she arrived they were off again, but less strenuously. It began to degenerate into something that looked more like tagging, though B would not permit his mate to get on the same side of a bush with him or nearer than about 3 feet, if he could help it. At times they would rest 5 to 10 feet apart in my vicinity and talk, using phrases that were mostly new to me. There was a little singing by both birds, soft in character. For the first time I heard the

New imitations.

Vigors wren imitated, by G, and B produced the Chickadee-like call of the Plain Titmouse, also for the first time. These were repeated. At this time they were sitting about 8 feet from me and 6 feet apart in rose bushes, but when Brownie saw his mate about to come over to him, he departed abruptly, followed by her.

B comes for
worm at last

It was not until about 5:10 that Brownie would come for worms in sight of his mate. By this time they had calmed down considerably and they came to me alternately, but Brownie still watchful of his

mate, who kept doggedly on his trail.

I have now watched the behavior of this same pair of thrashers through five nesting periods and am now in the sixth, but have not seen the slightest approach to this line of action before today. It is inexplicable to me. While I assume that it is part of the mating complex--why has it not occurred before? Superficially it looks exactly as if Greenie were trying to drive Brownie away, though there has been no coming to blows. Since 8:30 A.M. neither bird was seen to visit the nest or even look in its direction. If their actions are performed in accordance with some definite pattern, which, I understand, the pundits insist is the case, then the key to this one is assuredly not yet within my grasp. I refer not to this specific series of events alone, but to the life pattern of this pair of birds. If there is such a thing, one would expect it to be developed fully (as far as nesting is concerned) with one nest, and thereafter repeated indefinitely with each succeeding nest. Most assuredly, again, if there is a pattern, it is not too much to expect, that with the same pair, the patterns for succeeding years should be alike. But such appears not to be the case; unless this same thing occurred last year and I failed to detect it--which is unlikely.

At present the simplest explanation seems to be: that either these birds have no pattern (and I have never thought that they ever followed one except perhaps in a general, loose sort of way) or else that they do have one, but that it is not completely revealed in a year's time. In the latter case, then, today's behavior might mean anything.

Pattern theory must be applied with discrimination. With a stupid bird, I can see that the idea of a pattern, may be a good guide to the understanding of behavior; but with an intelligent one, I think (and this is not based on today's observations) if rigorously followed, it can lead to as much perplexity as the

Speculation
on
"Patterns"

Must allow for real intelligence. humanistic point of view, and I am not yet willing to admit that this pair of thrashers fits into a pattern except in the sense that the lives of human beings may be said to fit into patterns. In other words, I do not believe that every act of theirs, either as a pair or as individuals, is a part of a framework over which they have no control, or that they are mere marionettes responding to the pull of strings actuated by unseen hands. I think they have undoubted intelligence and perform many acts based on their recognition of relationships between acts or things and are capable of drawing inferences to a certain extent and regulate their behavior in accordance with circumstances and conditions as they exist and are understood in their environment; even to the extent of acting on occasion in a manner contrary to instinct or inherited tendencies or previous experience.

Feb. 20th.

Chase continues. At 8:30 A.M. the chase was continuing in the vicinity of the glade. Both birds came to me at the same time for worms and there was a lot of conversation during the lull in "hostilities". I went up to the nest, followed by Brownie, but he immediately fled as Greenie followed up the tree. Except in my immediate vicinity, B does not get a chance to dig, preen or eat, drink or bathe; and now he is not even permitted to guard the nest, much less sit in it!

B prevented from performing usual actions.

Guess as to interpretation.

If I were to hazard a guess as to what all of this means, it would be that the female's ^{active} reproductive instincts have been aroused earlier in the season than the male's, and the action witnessed represents her solicitation of him and his failure to respond.

Still chasing. At 9:30 Greenie was still following Brownie in and out of the bushes, Brownie avoiding too close approach. Both of them came to me quickly when I offered food; eating at the same time, close together, but B shy of his mate. Their talk to each other was almost continuous, varied and sweet. G made the "bell-call" almost in my ear:

Ting-tong, ting-tong,

beautifully clear and glassy.

After this the procession formed again and I went up to the nest (after B had picked up a twig and carried it up to a point near old nest No. 3 and been driven out by his mate) and B followed, began examining its interior, only to fly out as G arrived. B doubled back and the action was repeated.

I have not seen G actually overtake B at all, for if B stops, G also stops until B moves on again--which he usually does.

B takes a
brace.

At noon Brownie was becoming quite indifferent to Greenie's advances and began to stand his ground; warned her once or twice with a harsh hah, and pecked her once when she persisted. Both then came together for worms and B sat on my knee for several minutes even after he had finished eating, talking to his mate.

B in nest.

At 1:25, when I entered the glade, Brownie was sitting in the nest and Greenie was drying herself after a bath. She then went up to B and they talked a little, then both came down, but I had no worms for them, so G proceeded to sun herself, while B gathered a good load of fibre and took it to the nest. He was arranging it as I left.

B works a
little.

About 3:30, Brownie decided to add more fibre to the nest and worked quite industriously as long as I was there (until 4:15).

Watch him
placing
lining.

Greenie carried up only one load. I went up to see how B placed it. At first he looked a little fierce, but when I handed him a worm, he resumed work. The loose ends are tucked in with the bill. When he went down for more material directly below me, ^I gathered up some that I had previously placed on the platform, but which they had not used, and dropped it on his back a few pieces at a time. This did not disturb him at all and he gathered them up as they fell, bringing them up to the nest. He knew where they came from, because, after the first lot, he looked up as if to see where they would fall.

I am inclined to think that the nest may be considered ready for eggs. In previous instances, where witnessed at all, the copulatory act has been seen only about sunset and ^{after} ~~an~~ completion of the nest. I intended to look for it yesterday, but did not do so. I shall watch later on this afternoon.

Copulation. 5:55. At 5:45 I was watching Brownie at the berry patch, having just arrived there via the glade. Almost immediately Greenie appeared, ran toward Brownie, crouched with raised head, and Brownie mounted her at once. (Sunset 5:53). (Allen Hummer here today).

Feb. 21st.

Again. At 8:30 A.M. one bird was in the nest, Brownie. He came down almost as soon as he saw me, but Greenie invited his attentions and the act of copulation was performed. Both birds then came for food, but neither returned to the nest while I was there. There were no eggs.

B works again. During the day B occasionally carried fibre to the nest. Both birds were foraging about the place most of the time.

Copulation. At 5:15 P.M. B was sitting quietly in the nest, G in the bush-
B feeds G. directly
afterward. es. G called, B came down and copulation took place. B then came to me within a few seconds, took one worm and carried it to his mate. Both then came for food, and G went to the nest for a short stay, only

Feb. 22nd.

Nest not occupied. At 8:30 A.M. it was raining heavily. Neither bird was at the nest. Both were located under the brush on the bank south of the glade and reached through the fence for worms. The nest was perfectly dry under the roof.

At about 11:30 when I went to the glade again, both thrashers came running and flying, but instead of coming directly to me, sat at the edge of the bushes looking at me solemnly. B came finally, got one worm for himself and then retreated rapidly, looking at the

B teases G
with worm.

sky. He ate this one himself, but the next one he offered to G and as she reached for it, ran away; then back to offer it again and again retreating. He repeated this several times, approaching from different directions each time, G reaching for hopefully, with wide

Gives it to
her.

open bill. At last he thrust it into her mouth and watched her eat it. I tossed a worm toward them; both ran for it. B reached it

Allows her
to take worms
tossed to
them.

first, but stepped back to let his mate have it, as he made no further effort to get it. I tried it once more, with the same result.

Clearly B wanted G to have it. This is not his usual attitude.

B accepts offer
of acorn.

At 2:30 both came for worms and both went to the nest, B with lining. When B came down, I offered^e him an acorn. He took it and tried to open it, but could not. I got another one, while^{he} watched me, and split it open. He took this from my fingers and hammered it on the ground, stretching to his full height to get a full swing at it, driving it down into the ground. He ate the kernel with apparent relish. It is strange that these birds will not make any effort whatever to hold any object with their feet when they are trying to break it up. B had just had plenty of worms, so the acorn can not be considered an emergency ration. (There are thousands of them on the ground)

Acorns are
relished.

Feb. 23rd.

Wind screen
for nest.

Heavy rain at intervals during the morning, accompanied by strong S.E. wind. The thrashers stayed under cover while it rained. I placed a wind screen to protect the nest from the southerly winds;

B inspects.

Brownie coming up to inspect the work several times and sit in the nest. Whenever he saw a loose fibre projecting above the rim, he tucked it down in. Occasionally he would stand up and look over the interior carefully.

Nest completed?

Once or twice a fibre or two was carried up, but no work of consequence was done during the day. Brownie sang phrases of full song several times, while I was working on the screen, sitting 15 or 20 feet away.

B sings.

anticipates young. Once he carried a meal-worm up to the nest, as if there were young to be fed.

Feb. 24th.

Bright and sunny after the rain.

B optimistic about young. At 8:30 A.M. I went to the glade. B&G came for worms; B again taking one up to the nest. He brought it back again, took another one, started toward the nest again, hesitated, then ate both. G was within a foot or two of him, but he did not offer them to her.

After this he took a few fibres to the nest, and G joined him as I left.

At intervals during the rest of the day they were seen to add a fibre or two.

lost thrashers with centi- and millipede- I tested them on a large centipede and two creatures that looked as if they might be a larval form of the millipede (if there is such a thing). About an inch and a half long, nearly white, flat like a centipede, legs from stem to stern, inclined to curl up into a spiral like a millipede.

B teased G with centipede, then gives to her. B took the centipede by one end, hammered it about a bit, then teased G with it, and finally let her have it, and she ate it. B came back, looked at the other things, but would not touch them, although he dug within an inch of one of them that was crawling. G was induced to come and have a look, but she would not touch them either.

Feb. 25th.

At 7:45 A.M. both thrashers appeared promptly for worms, coming from different directions. After this, B took one or two minute fibres to the nest.

There is early morning song frequently.

At 10:30 one of the birds was sitting quietly in the nest. This may be the beginning of the "thinking" period.

Feb. 26th.

Early song.

Early morning song about 6 o'clock. About 8:30 there was a Flicker sitting in the top of the old oak with his back turned toward the glade, so that his head could not be seen from the ground, and his feathers puffed out; altogether looking very much like a hawk or an owl. When the thrashers came to the edge of the bushes, they eyed this flicker for perhaps 5 minutes, and would not come out. Ordinarily they give no heed to these birds, and it seems that they were uncertain of its identity as I was. It was not until it turned its head in my direction that I could tell what it was.

Hawks.
I suspect
flicker of
being hawk.

Sharp-shin
reaction.

3:30 P.M. A Sharpshinned hawk has been hunting through the trees several times during the last few hours, and all the birds are shy. At one time B&G froze while at my side and looked intently off behind me to the east at something apparently on the ground. Within a few minutes a Sharpshin appeared in the opposite direction.

Thrashers
marking time!

The thrashers have not been occupying the nest much, but have made one or two haphazard efforts at placing lining. This action appears to have no useful basis and gives one the impression that they are only killing time until the spirit moves Greenie to lay some eggs.

Evidence of
Normal nesting
season.

Donald Brock found a thrasher nest in course of construction in the hills about 3 miles from here, on the 18th. inst. On looking at it yesterday, he thought it finished. This indicates that the nesting of B&G is probably normal for California Thrashers in this vicinity.

Feb. 27th.

Early morning calls were heard about 6:15. No song, other than a few calls, during the rest of the day. There was some sitting in the nest. On one or two occasions when I went up and found it unoccupied, Brownie came up and sat in it. Once a visitor and I went up and B came just the same, taking worms handed him. Once also,

B's reaction
to my presence at
nest.

they were seen to change shift.

At 6:10 one of them was sitting in the glass house in the dormitory tree on the way to its final resting place for the night.

No eggs.

Feb. 28th.

A few loud calls early in the morning.

G in nest. At about 8:15 A.M. Greenie was in the nest, Brownie in the glade.

He went up and relieved her, then left himself. When I went up to the nest, B returned, friendly and without constraint and examined its interior, but found no eggs. As I left he called loudly:

No eggs.

B calls.

Yerr-pit-ye, yer-pit-ye, cloo, cloo, clock, peet-byouick!

then left the nest, apparently in search of his mate, who had dived over the fence.

Feathers in glade.

There was a large quantity of feathers in the glade; either Thrasher or Brown Towhee. Some of them were orange-brown, from beneath the tail, and from the size, looked as if they had come from the thrasher, but both birds were accounted for.

Shifts begin. Much calling.

During the day there was a good deal of calling between the nest and the bird off duty, but, up to noon, there were no eggs.

Cat trap built. In the afternoon I built a cat-trap, and did not look into the nest again.

March 1st.

No early morning song heard.

B in nest. About 8:30 Brownie was sitting solidly in the nest, looking stern and uncompromising; however, he accepted a worm, though somewhat ungraciously. He would not come down and eat and G did not appear. This looks as if there might be an egg.

2 hawks, one has bird.

About 9:30, as I approached the glade, two hawks were sitting in the top of the old oak, directly above the nest and about 20 feet

higher, flying when they saw me, one of them carrying a dead bird in its claws which I could not identify.

B stubborn
in nest.

Brownie was still in the nest, tail toward me. He would not turn around to get the proffered worm, so I left him. He would not come down to eat either, and G did not appear.

At 10:00 B was still in the nest, but had changed position 90 degrees, so that I could hold the worm right in front of his bill. However, he would not take it, nor would he come down to eat, nor could anything be seen or heard of his mate. I began to wonder if G might not have been the hawk's victim, so went in search of her.

She was in the orchard. I returned to the glade. G came in a few minutes, and at 10:30, they changed shifts, revealing the first egg, of the new cycle.

First egg. B then came and had a good meal of worms, notwithstanding his in-
7 days earlier than last year. difference while in the nest.

The first egg last year was laid on Mar. 8th., so the present one was laid 7 days earlier. If it had been a day sooner it would have been a February egg and would "sound" a month earlier.

no demonstration for first egg. The advent of this egg was not heralded by loud song and both birds have been almost completely silent all day, in contrast to behavior in connection with nest NO.5.

B loosens up. At 5:30 P.M., the first observation for several hours, B was in the nest, apparently quite pleased to have me hand him worms. At 5:40 G took over, B coming to me for more worms and having a good stretch, arching his back like a cat.

March 2nd.

fearful of hawks. At 8:30 A.M. Greenie was in the nest, Brownie, fearful of hawks, came skipping and hopping for worms, only to dart back again after each one with keen glances up into the sky. There were new feathers near the feed dishes, and a hawk raid was heard earlier. The increased activity of the hawks in the morning may possibly act as a damper on the thrasher music.

Two eggs.

A little later, when the shift was changing, it was noted that there were two eggs in the nest. Since the first egg was laid the nest has been continuously occupied by one or the other of the birds.

7:15 P.M. Everything proceeded according to schedule during the rest of the day, as far as witnessed.

There has been little singing of any kind since the eggs were laid.

March 3rd.

At 8:15 Greenie was in the glade and relieved B after she had had a few worms. B came to me at once, but shortly climbed into the oak behind me, where he sat looking off over the country. During this time B uttered not one syllable, but G^{had} notified him that she was going to take over by sounding ^{the} "bluebird" call as she approached the nest.

At 9 B was in the nest, and as I stood watching him and giving him an occasional worm, the wren came and demanded his share.

Wren's nest. The wrens have elected to build their nest in the tool house where they will be disturbed every time anybody enters, which is often, and a door or a window will have to be left open for them. The nest is only about 2 feet above the floor, between two studs, on top of a cleaning cloth which is kept there, and behind the strainer (hanging on the wall) that was used as a substitute for Thrasher nest used every day, NO.5. The garden tools are all about it. One of the birds is very wild and dashes against the windows when anybody enters; the other is the tame one. There are also numerous mice about. Although a very comfortable location, it is unfortunate in many respects, and I am surprised at their choice. They ^{had} examined all the houses, holes in stone walls and in banks and even the astronomical telescope mounting in the tower (where they were seen to carry feathers). Several of the locations had been used by them (or their predecessors) in previous years.

Interesting
scene at nest.

About 10:10 there was a musical call from the nest and I went to the glade, B coming for worms. I got the impression that he had just been relieved at the nest, and that it was too early to change again. However, I went up to see if he would come, and he did with-

G not ready
to shift.

in a few moments. Greenie, however, was not ready to have him resume incubation and would not get up, protesting softly and opening her

B insists on
"counting"
eggs.

bill. B insisted on at least seeing what she had under her (which is what I wanted to find out too) and ^{probed about with} his bill on all sides of her trying to look under her. She would not get up and seized his bill crosswise in hers and seemed to try and thrust it aside. (All of this about 18 inches from my face). B persisted gently and she yielded sufficiently so that I could see two eggs, B having his head almost entirely beneath her. My thought was that G might be about ready to lay a third egg, knew that it was due, and that this was no time for changing shift. B must have seen the two eggs (he could hardly avoid it) and it was evident that he was not satisfied, for he finally push-

3 eggs.

ed her aside with his bill enough to reveal 3 eggs. (My guess was apparently wrong). She covered them again, and when I left, they were still discussing the matter in low chuckling warbles, ^("bubbling") but G was "sitting tight". Altogether this was an extremely interesting and pleasing showing of gentleness and persistence on the part of B, matched by equal gentleness and resistance by his mate. As a pretty spectacle of affection at the nest it was ^{equaled only} ~~only~~ ~~matched~~ by the one recorded in these notes at nest No. 1, when Greenie called to her mate and he came and hovered her. (See p.64, Mar.26, 1933, noting that ^{This was entirely new behavior} ~~sexes as stated there are wrong~~). ^{It was not trying to find out if the expected third egg had been laid, which}

Owing to absence, no further observations were made during the day.

March. 4th.

Catch a cat.
This explains
leathers in
glade.

A huge gray cat was found in the home-made trap in the glade, one that has eluded me for several months, and that has been a per-

sistent disturber of the peace. Julio reported that one of the thrashers was scripping about the trap excitedly and would not calm down until he took the trap away, cat and all. It was located about 25 feet from the nest, at a point where the cat had last been seen.

At 8:30 A.M. Greenie was in the nest, B coming for worms.

At 10:30 B returned from a trip off to the east, got worms from me and then I went to the nest and waited for him to come and take over the job. G, after a few remarks were passed between the two birds, left disclosing still three eggs. B seemed to count them, then settled himself comfortably.

Still three eggs.

Of the six nests that have been under observation, built by this pair, each has contained 3 eggs.

Titmouse House again occupied.

The Plain Titmouse's house was cleaned out a few days ago and furnished with a new carpet of pine needles. It is now occupied for the ninth season by a pair of these birds. It would be interesting to know if it is the same pair.

B's feet warm for a change.

Once, when Brownie jumped up to my knee I was surprised to feel the warmth of his feet through the cloth of my trousers. I have heretofore noticed that his feet were cold.

March 5th.

Thrashers silent.

Nothing unusual during the day. No early morning song, nor for that matter, any song of any kind; not even talk. The ~~birds~~ thrashers are almost voiceless at present. Once on being relieved, Greenie scripped for a few moments, for some reason not clear. Incubation

End of duty renders fat.

is proceeding faithfully with no intermission at all between shifts.

Shifts made silently.

The shifts are long, and the bird off duty is inclined to wander off to considerable distances. The changes take place apparently without exchange of calls or signals much of the time. This, I think the notes will show, is contrary to the usual procedure.

March 6th.

Enter in nest.

The thrashers seem to be more shy in the nest than before. Even

Brownie will sometimes refuse the worm offered him. Greenie almost invariably does; though she occasionally takes one.

1:20 P.M. I have not heard a sound from either of them today as yet, though both are friendly. About noon, as I was filling the food dishes on the ground in the glade, I looked up to see Brownie facing me about 4 feet from my face, with wings spread and bill wide open. He jumped to my hand, and his feet felt hot. Between worms, he again spread his wings and opened his bill. (Temp. 67). Is the body temperature of birds automatically raised during the period of incubation? Perhaps, if it does, that would account for his hot feet and his show of distress at such moderate air temperatures. (Perhaps his feet are hot because he has been sitting on them)

March 7th.

Incubation proceeded regularly, the shifts being of long duration, the birds mostly silent, though with some bubbling when they met at the nest. Both B&G absolutely silent when eating from hand.

March 8th.

As I stepped out of the dining room window about 8 A.M., carrying a 22 calibre rifle, a Sharpshinned hawk conveniently lit in a tree about 20 yards away and was added to the score against these predators. A small male.

No song, either full or sub-, no talk, no call, only an occasional "bubbling" at the nest when changing shift, on the part of the thrashers during the day. The bird off duty often foraged at a considerable distance from the nest. B, while sitting, took worms readily; G usually, though not always, refusing them.

March 9th.

B on the nest at 8 A.M., G not in sight.

At 9 A.M. a thrasher call was heard off to the S.E. at a considerable distance. It was instantly answered from the nest with a series of gur-r-rkits. Soon the approach call was heard, getting nearer, and Brownie jumped up to my knee, ate worms, went and got a

drink, then to the nest, where G greeted him with a couple of gurkits and then to me for worms, then off to forage.

Varied Thrushes. The Varied thrushes are still numerous and vocal. When disturbed, they fly out from under the azaleas and rhododendrons, up into the overhanging oaks, often with acorns in their bills.

Azaleas and Rhododendrons. As a key to climatic conditions: The azaleas of the Kurume and Indica type are a blaze of color, many of them having been in bloom since early in November. The rhododendrons are less advanced, except the Felix Sauvages which have finished blooming. The deciduous azaleas of the Mollis type are not yet in bloom. All of this is normal.

March 10th.

Morning songs. At 6:55 A.M. occasional burst of loud song were heard, shifting from point to point. On looking back over my notes in connection with nest No. 1, I find that comment was made on the absence of song after the first egg was laid and the increasing scarcity (sounds Irish) of vocalization of all kinds. Experience with nest No. 6 is paralleling that with No. 1, but as to singing, is totally different from that with No. 5. Query: Does the pattern at nesting vary with the time of year at which the nest is built, etc., etc.,?

During the rest of the day incubation proceeded quietly and without heroics.

(Prince Camille de Rohan and Mme. Wagner rhododendrons now showing color). (Max. temp. about 77).

March 11th.

A little early morning singing.

G calls from nest and leaves. At 7:50 A.M. G was in the nest. About 8:10 she called loudly and was answered from the S.E. She went to meet the returning B, leaving the nest empty, as I found out by going there. B came running fast, popped into the nest without pausing in the glade, and was very glad to have me hand him worms. The eggs (still 3 in number) were uncovered for perhaps a half minute.

This looks still more like the pattern of nest No. 5, though the singing is much less. (Official max. in S.F. 81, here: 78)

March 12th.

Early calls. A few early morning calls--between 6 and 8 o'clock. B on the nest at 8:05, looking in the other direction as I arrived at the worms without looking at nest. For the few minutes I was there he shifted his gaze in all directions, not looking directly at me once, evidently not concerned about my presence. When I handed him worms, he gobbled them, apparently satisfied that they put in their appearance through the operation of natural causes and that it was not necessary to trace them to a definite source.

Worm swallow- ing method. He takes the worm in the tip of his bill, then opens his bill slightly, thus leaving the worm, in effect, momentarily suspended in free space; then thrusts his head sharply forward so that although the worm remains where he was in the beginning, he finds himself completely surrounded by thrasher. If, as sometimes happens, the worm gets a grip on the bird's bill, this movement results in his being accidentally thrown away. On such occasions, Brownie peers down regretfully over the edge of the nest for a moment, but accepts the loss philosophically.

11th. day of incubation. The 11th. day of continuous incubation will be completed this morning.

March 13th.

Early song. A little early morning calling in musical phrases; B on the nest at 8 A.M.; worms acceptable.

About 9, as I was examining the grafts in the orchard, a plaintive:

Beer-cup, beer cup

came from outside the fence and B came running to me for more worms, carrying the last one toward the nest 30 yards away and then changing his mind about it.

March 14th.

Few observations made, as it was necessary for me to be absent in connection with a suit where one of the parties requires certain information in petroleum technology. However, incubation was proceeding according to schedule, and the thrashers were silent, except for some interchange of calls when changing shift.

March 15th.

The foregoing entry might well be duplicated, though, in addition, it was noted that there were still three eggs in the nest, B permitting me to feel underneath him, and eating worms freely.

March 16th.

Loud calls about 6:15 A.M.

About 8:30 A.M. G was on the nest and would not take worms. B did not show up until nearly ten, at which time his scripping was heard approaching from the S.E. The last 2 or 3 scrips (khrick), very much softened, were uttered as he sat on my knee. As he swallowed worms, minute sounds, just audible at about 16 inches, were heard, as if the worms were not going down properly. However, it developed that these were voluntary sounds which he expanded into the approach call, then headed for the nest with a worm, Greenie calling loudly for him to hurry up. I got there first and offered G a worm before she got up, but B arriving at that moment, selfishly gobbled it, together with the one which he had carried up. There were still 3 eggs after 15 completed days of incubation.

→ Sounds preliminary to approach call.

Still 3 eggs. 15 days incubation.

Kinglet and Hermit thrush approach

(While waiting for B to come, a Hermit Thrush, repeatedly came to me waiting for worms to be tossed to him, which he took at about a yard from me. A Ruby-crowned Kinglet also approached to within 2 feet of a worm held in my hand, but would not come closer).

March 17th.

No early morning song heard.

A little before 8 G was on the nest. I did not disturb her, in order to ascertain whether the expected youngster had appeared, and B did

not come to take over. This is the 16th. day of incubation, and one chick should be born if the precedent of nest No. 5 is followed. However, the first set of eggs last year was sterile.

First egg
hatches.

G feeds him,
not by re-
gurgitation.

9:00 A.M. At 8:50 I went to the nest, B on duty. I felt under him after giving him a worm, and thought I felt a youngster, but was not certain. B protested wordlessly, but was not much disturbed, as he took worms gratefully. Fortunately Greenie's approach call was heard soon, and in a few moments, she came with something in the tip of her bill; B stood up and G reached under him before he had time to leave and pushed whatever the insect was (a grub) down the throat of a purple-black youngster that head automatically opened its mouth to receive it. B left and G took charge. This was, possibly, the first feeding and there was no regurgitation on the part of the parent bird. As far as this pair of thrashers is concerned, regurgitational feeding does not exist.

Pat.

As this is St. Patrick's Day, the youngster is automatically named already.

About noon I went to the glade to note progress. B came from outside, had three worms himself, then took the fourth to the ground where he prepared it thoroughly at my feet, uttering the blue-bird call while doing so. He broke it up thoroughly. All this meant that he intended to feed the young bird according to previous practice, and he accordingly carried the worm up to the nest, giving his approach signal all the way, Greenie leaving as he arrived. There was no singing to herald the arrival of the nestling, as far as I could tell, and the parents have been silent all morning (I have been working about 100 feet away) except for the approach signal.

About 5:30, at change of shift, I looked into the nest. It seemed full of young thrashers. I pawed around in it, Brownie waiting patiently on the rim, until an egg was found. Another young-

2nd, egg
hatches on
same day.

ster had been born after 8:50 this morning; it is impossible to say when. "Pat", therefore, has not sole title to the name. He was born sometime during the 16th. 24 hour period of incubation, counting from the first egg. The latest arrival, therefore, appeared during the 15th. day of incubation of the second egg. Until returns are all in, there is still an uncertainty of a day in the incubating period, since none of the eggs was marked.

March 18th.

infertile
egg?

feeding by

Greenie

7:45 A.M. At 7:30 there was still one egg in the nest. Greenie was in it, but sitting lightly. Brownie came up with me carrying a worm previously carefully prepared by him, which G asked for and received, holding it in her bill until her mate and I stopped messing

around activ-
ties about nest.

around under her. B evidently saw the egg first, for he departed after one good look underneath ^GB, during which he also abstracted an oak leaf from under her and threw it away with a side flick of his bill. (Many of the old live-oak leaves are now falling from the trees. Their edges are somewhat spiny; enough so to be uncomfortable to sit on. The new growth about the nest since the first egg was laid is 6 to 9 inches in length and it has completely altered the fairly open situation into one that is now well concealed).

one egg still.

G opens her
bill at me,
then does
same for B.

finger in
B's mouth.

Push B's bill.

At 9:50 exactly, still one egg under Greenie when I felt under her. She did not like to have me do it, and opened her bill at me protestingly; however, when B came and sat on the edge of the nest uncombedly, she did the same to him. B brought a small insect which he merely dropped in the nest. I put my finger in G's mouth, but she did not bite. I pushed B's bill with my finger, but he did not mind. Neither bird froze. B did not offer to take over G's job, nor did she wish to leave. I left them as they were, to make this entry. They clucked to each other, but not to me.

At 11:35 exactly--still one egg; B making me a regular port of

call for worms, following previous patterns. Mr. Brock and Mr. Beckmann watching this.

At 12:32 still one egg; revealed when G stood up to feed the chicks with a meal worm handed her by B, handed him by me.

At 4:30 still 3 eggs.

5:20. The birds have had numerous visitors at the nest today, beginning at about 10 A.M. and just ending. B showed one visitor how he takes a worm from me while in the nest and gives it to a chick.

5:45. Still one egg. The fairy chorus has begun. The 12:32 order of feeding was again followed. This is happening often. One chick has a much larger mouth than the other.

March 19th.

No early morning song.

8:30 A.M. Still one unhatched egg in the nest and two chicks.

At 11:30 conditions were the same. Greenie, on the nest, thawed, took worms from me and fed the young birds, Brownie assisting.

5:45 P.M. I visited the nest several times during the afternoon. At 5:30 the egg was still unhatched. I took it out and examined it, Brownie not objecting, settling on it comfortably when it was returned. As it is beyond the proper incubating period and both birds do not hesitate to be away from the nest for short periods simultaneously, they probably have abandoned hope. I shall leave it in and see if the birds dispose of it in case it does not hatch.

Pleasing friend- When B comes to the nest with a worm, and G is there, she usual-
ness of parents. ly begs him for it with soft clucks, and he gives it to her. She then feeds one of the young birds. B usually waits at the nest for an indefinite time on such occasions, appearing much interested. Both of the parents now take worms at the nest for the chicks. It is a pretty sight to see them both so friendly and confiding. They also are coming to me freely in the glade for the same purpose.

March 20th.

No early singing; no calls during the day, other than the soft approach call like the pewh of the Western Bluebird.

The third egg did not hatch during the day. Greenie chased away a California Jay that was too near the nest. Brownie saw the chase but took no part. None of the three birds made any cry whatever.

The thrashers now are taking more than one worm at a time from me for the nestlings. It is strange that Greenie should still approach me rather timidly in contrast to her mate.

March 21st.

No early calls or song. The thrashers are now more active in search of food, yet they do not seem to go far, as I am usually able to get them quickly.

Greenie is coming to me oftener for worms than formerly. She and Brownie make regular trips to me alternately for worms whenever I encourage them. They are now taking three or four at a time. Brownie has developed a new technique when I hand him one worm at a time as he sits on my knee. If he intends to take them to the nest, he throws them down to the ground or in my lap with a quick flick of the bill almost too fast to see, and not apparently looking to see where they go. Between throws he waits patiently for me to hand him another, usually, but sometimes advances boldly upon the worm box. When he has all he thinks necessary for the time being, he goes down and prepares them for feeding, then starts for the nest making the approach call.

I have recently noticed that Brownie in running along the ground often runs askew, though keeping a straight course, much as a dog when trotting carries his rear end off to one side of his line of travel in order, I suppose, to avoid stepping on his own front heels with his hind feet (interfering). Is this a relic of the time when birds were still in the quadrupedal stage or the result of an injury?

At one time last year, as recorded in these notes, he was very lame for a week or more, but recovered. (Recovery, I believe, was not recorded). There was no sign of injury and I wondered at the time if he had gout from eating too much rich food!

Twice today he came over to where I was building a magpie cage, and twice he called me with a loud succession of melodious phrases when I happened to pass by where he was at the time without noticing him. The circumstances were such as to leave little doubt as to the motive behind the call. This has been noted and recorded before.

He also inspected a stuffed Varied Thrush in a trap set by Mr. Brock. (Seen by Julio).

March 22nd.

The thrashers were not heard to sing at all during the day, attending strictly to business.

About noon Mr. Randall of the Eastman Kodak Co., who was trying out his color camera on the azaleas and rhododendrons, got one short length of film of Brownie taking worms from my hand. B had just had a bath from which he was not yet dry and was also shy of the camera; further, the youngsters had been well fed and there was no pressing need for more food at the time.

March 23rd.

About 8:30, as B&G were reaching into the worm box held at the nest, it was seen that the chicks are growing rapidly and have their eyes partly open. This is several days earlier than in the case of nest No.5.

G B's behavior at the nest is the same as before, i.e. she does not "limber up" until B is there or until she hears him climbing the tree; then she reaches for worms freely and is friendly and tame.

As to singing, there is a strong contrast between nesting periods 5 and 6. The notes show a lot of singing by both adults at almost

all stages of the cycle with 5, but almost complete silence with 6.

During the rest of the day operations proceeded normally, the parents coming to me frequently for worms.

March. 24th.

No singing at such times during the day as I was present. Both parents feeding the young, but the male doing most of it.

March 25th.

Still no singing. Quite a few visitors watched Brownie take worms from me at the nest and feed the young birds.

March 26th.

At 8 A.M. B&G commenced making regular trips between the nest and me. Within a few minutes they had given the youngsters 50 mealworms. They are looking me up frequently now wherever I may be, B especially.

Later in the forenoon a visitor and I went up to the nest, the adults being away. B got there nearly as soon as we did, followed quickly by G, who walked all over his back and then sat down on him hard. B protested in pantomime and one of the youngsters screamed angrily when stepped on. I pushed Greenie off and she sat about a foot away and watched her mate do the feeding.

Greenie lame. Greenie, now, has gone lame in her left foot. (Note, August 19th., 1934. Greenie was never seen again after Mar. 26)
March 27th.

All silent except for two calls by Brownie, each of which I answered, bringing him to me promptly.

There is G. Greenie has not been seen all day, although I have visited the nest and the glade several times and Brownie has sought me out where I have been working repeatedly. On several visits to the nest, both parents have been away, but B has come quickly each time and fed the young from the worm box held out to him.

No difficulty in In contrast to No. 5, the parents have had no difficulty in feeding as with nest 5

Great precision in feeding. getting the worms down the throats of the chicks. In fact I have not seen them make one failure on the first attempt, whereas at nest 5, Greenie often made many failures. (15 to 20 in succession. See p. 501)

B's rate of stocking. Brownie, when feeding alone from the worm box, works with machine-like speed and precision, at the rate of a worm to $1\frac{1}{2}$ to 2 seconds, ramming them down hard and far. The young birds seem much more vigorous than those in 5 at the same age and this helps, as they can keep their necks stiff. I think they are the most voracious of all the broods; when one of the parents is feeding one of the chicks, the other, observing me nearby, often thrusts his head out toward me beyond the rim of the nest and tries to swallow a finger. They appear almost fierce, and it is singular that their voices should be so soft when begging for food. I have not fed them myself as yet and to date they have shown no fear of me, though plainly aware of my presence.

No Jerusalem crickets yet. I have seen no Jerusalem crickets fed; in fact have seen little wild food brought by the parents.

G's absence I am wondering if G's absence today means that she may be considering another nest.

B's concern for nest. It has been especially noticed today that B, when away from the nest, has been much concerned about it, frequently looking in that direction, up into the sky and often darting off toward it before getting his usual full cargo. He has also been noticeably concerned about the movements of the jays--this is not usual.

He is very careful to pick oak leaves out of the nest.

March 28th.

No Greenie! At 8:15 A.M. Brownie doing the honors at the nest--no signs of Greenie.

Ant "e"s". 10:15 A.M. Still no signs of Greenie. I offered ant eggs to B at the nest. He was a little doubtful of them, but fed a few to

nestlings and ate some himself. When I retired to the ground, he followed, flying to me knee, but immediately departing when he saw only ant eggs. Several times he investigated, but each time saw that I had nothing but the eggs and turned away in the air before reaching my knee.

I have an indistinct recollection that G disappeared for a short time, from the glade, to start nest No. 4 while B was attending to the No.3 brood, and will look this up. However, if she did, it was after the brood had left the nest.

4:10 P.M. Up to this time, still no Greenie.

I offered the nestlings softened ant eggs on a spatula and they took them greedily, impaling themselves on the stick with no sign of fear.

B came and watched the operation with seeming approval, eating some of the eggs himself. He does not seem to be worried by the absence of his mate; perhaps it is part of the plan.

No signs of Greenie all day.

March 29th.

At 8:30 A.M. neither adult was to be found. Hunting and calling brought no results. The young were sleeping quietly in the nest.

At about 8:45, as I turned from the nest, there was a soft queelick coming from it and Brownie was in it, having brought no food.

Up to 9:50--no Greenie.
" "11:30 " "

Brownie, for the first time, has been observed to carry excrement from the nest--a change from the pattern heretofore noted.

6:06 P.M. He has not abandoned the former method, however, as I have just noted at the nest. Greenie is still absent. I do not

understand why Brownie does not call her, unless he knows where she has gone and approves.

March 30th.

At 7:30 A.M., Brownie waiting for me in the upper garden. Went

to the nest--no signs of Greenie. Earlier in the morning a loud thrasher call was heard.

Brownie
approves
highly of
my help.

Youngsters
associate me
with food.

During the day Brownie was in constant attendance at or near the nest and seemingly much pleased to have me assist in feeding. I am supplementing the supply of meal-worms with scalded ant eggs mixed with soft food. This mixture is fed with the "squirt gun". Even when B is feeding them at the same time, the young bird not directly concerned with Brownie, reaches out to me eagerly for food. Brownie watches closely, picks up all the crumbs and looks down their throats as on former occasions, to see if I have made a good job. He also picks off the small particles of food that adhere to the glass tube, sometimes giving them to the nestlings and sometimes eating them himself. He likes to be fed with the gun himself. He does not hesitate to leave me alone at the nest and walk about on the platform at my feet, looking up at me and showing no concern.

likes to be
fed with squirt
gun!

No G!

There have been no signs of Greenie all day.

March 31st.

first sign of fearAt 7:30 A.M. B was at the nest. The young ones squealed when by young, but they quickly they first saw me and crouched low in the nest at first, but almost realize error.

immediately began reaching for food, singing the fairy chorus.

Test to see if B knows young
have been recognise that the nestlings had been well fed, or continue the operation.

He took up one small load, and on his return, ate a few himself, taking up only two. Coming back he ate a few, took up one or two, then ran toward the oval lawn, where he called once: Too-wheat-you, (for G?) weet, weet, weet.

How do we
know when young
have enough?

lai

I have wondered how the parents knew when the chicks had had enough food: by the actions of the young, their own sense of having labored sufficiently, or what? It appears from the foregoing that they can tell irrespective of the amount of food that they themselves have administered.

No G. No signs of Greenie all day. (No varied thrushes seen since noon March 28th., then only one).

April 1st.

Silence. No singing or calling all day. B and I both feeding the young

Young thrashers. The latter get up and stretch frequently, walk about on getting restless.

They move off of each other and around the rim of the nest, peck at things, outside world.

preen and scratch themselves. They listen to all sounds, watch falling leaves and oak catkins and eye me speculatively, but without fear.

That effect on - The oaks were sprayed with lead arsenate 2 or 3 days ago. For several years I have watched after each spraying to note if it had

any bad effect on the birds from eating the dead caterpillars, and have failed to note any consequences. I again watched very closely, especially Brownie, and have seen him picking them up off of the a few times.

ground and carrying them to the nest. As a consequence I have fed both him and the young birds more frequently than I would otherwise have done, in order to reduce the amount of contaminated food eaten by them. On one or two occasions when B has come to me with green caterpillars I have, by offering him meal-worms, succeeded in getting him to drop the former and taken them away from him, but he usually is too quick for me. It is possible that he does not pick up those that have been poisoned.

Visitors at nest.

Late in the afternoon Mr. Cain called with 5 or 6 boys. I stood at the nest and the visitors came up one at a time. B, who was not there at first, soon came and the visitors were able to see the young birds taking food from Brownie and me and B getting his supply from me; all at the close range of about 2 to 3 feet. No Greenie all day.

April 2nd.

Young expected 8:30 A.M. I had rather expected one young bird at least to be to be gone.

missing from the nest, but they were both there, very hungry and lively. B did not come.

"Or-nest" call At 10:15, while I was watching the magpies, about 100 feet from the thrasher nest, I heard the first unmistakable call that the

young thrasher makes after leaving the nest: kip, kip, kip, a few seconds separating the kips. This meant: at least one bird out of the nest. Going there, I found the caller sitting, back toward me, on a twig about 1 foot from the nest; so the diagnosis was correct, though by a rather narrow margin! When he saw me he changed his mind about faring forth and returned to the nest, dropping the kip call and joining his nestmate in the fairy chorus. While I was giving them a good feed Brownie returned, without food, helped in the operation, then ate heartily himself. The youngster settled down for a nap with B partly hovering them. (Warm in the glade, but chilly wind from the north; temp. 58; only a few hundredths of an inch of rain in the last 30 days--total).

Kip call.

This kip call has never been heard from ^{within} the nest at this place. It is the usual call for the first few days after leaving.

These young birds are now 16 days old, both being born on the same day.

Ant on one.

There was an Argentine ant on one of them (which B did not see). The nest has been free of them. There has been, from the first, a barrage of ant poison about the base of the tree. This is the first ant seen in the nest, and may mean the beginning of an invasion.

11:30 A.M. B may have been aware of the ants as he has been \$
spending a lot of time sitting on the edge of the nest since last ob-

servation. Also he seems to be preparing the glade for the reception of the brood, attacking the quail fiercely and driving them out, pulling out tufts of their feathers in the process. The smaller birds he is not molesting at present.

Droppings still enclosed.

I just noted that the droppings are still enclosed in a sheath, B having brought some from the nest and dropped them near me.

Fairy chorus ventriloqual.

About 10 minutes ago a visitor stood with me at the nest. When I called his attention to the fairy chorus, he said that he heard it, but was unaware that the sound came from the nest into which he was

looking.

"Fluorescent pupils"

The pupils of the eyes of these young birds also show the same fluorescence or "bloom" as noted with the young of nest 5. It is very striking. The parents' eyes do not show it ^{even} under exactly the same conditions of illumination. I have repeatedly made the comparison at the nest.

Ins and outs. At 6:00 P.M. both birds were still in the nest. One of them has been out of it repeatedly, returning each time without wandering more than a foot away among the surrounding twigs. Once again he ~~was~~ was heard to give his kip call when out of it. Once also he crowded past Brownie on his way out, B not even turning to look at him, returning voluntarily for more food and a nap.

I have once or twice suspected that food is given more sparingly when it is considered about time for the young to leave, but have no confirmation of this.

Parents do not urge young to leave. I have never seen any disposition on the part of either parent either to force or induce the young to leave the nest.

passionately, lameness in nest. The little fellows are very tame, like to be "hovered" with the hand in the absence of B and like to have their chins rubbed, closing their eyes complacently with "drowsy tinklings".

They have shown a disposition to peck at particles of dropped food and pick objects off of each other.

Gullots ~~and~~ I think their gullets are becoming smaller, judged by appearance and by the fact that the tube of the "squirt gun" does not go down so far; also B now, occasionally, makes a miscue in feeding.

B's splendid housekeeping. B continues to keep the nest scrupulously scavenged of all ^{crumbs,} droppings, oak leaves and catkins. He does not confine his attentions merely to those which happen to attract his attention; he searches for them and even occasionally rearranges portions of the nest structure that have become displaced. A fine housekeeper and parent.

Only one loud call heard today, intended, I think, for me, as he immediately followed it up by looking for me. No talk whatever, barring occasional clucking to make a chick open its mouth. Except as just noted, absolutely voiceless--even when chasing the quail. A silent scrapper.

Still no
Greenie.

No signs of Greenie. I fear that she will have to be written off the books for good. She leaves a painful vacancy. I hope it is only desertion.

April 3rd.

Both young out. About 7:30 both of the nestlings were out of the nest.

About 8 they were concealed in the brush in the glade and Brownie was coming to me for worms with which to feed them. He would not take soft food.

Feed one, then
Catch him--
series of
jections.

9:25 A.M. About 9 I located the young thrashers by watching B taking them worms. I entered the bushes and offered one of them soft food in the squirt gun, which he took readily. I picked him off of the branch without protest from him, although he struggled slightly, and sat down on the ground, holding him on my lap. B was watching all this, a little worried, but came at once, took worms from the box and fed the young thrasher several times as I held him. The young

Feeds him while
I hold him.

Put in cage.

Feed other.
Catch him--a
great commotion.

bird did not appear to be frightened and wandered about me. I then put him in a cage and went to the other youngster, who also accepted soft food; but when I picked him off of the limb he emitted a success-

Shrieks.

B much distur-
ed.

Put him in
cage also.
B digs under
it.

ion of harsh, angry screams, like those of a shrike. B flew to me much excited and alarmed, fluttering in my face, on top of my head, on my hands, making soft calls: pit-yourki, queelick, etc. I put this one in the small cage also. B tried to dig under it, then dug underneath one of my feet, talking all of the time, much disturbed.

Let them out. The youngster first caught was calm, the last one noisy. I opened the door. The first one came out quietly, not apparently frightened.

Brownie attacked when the noisy one rushed out, Brownie at once attacked him fiercely, noisy one fiercely.

Impulsive behavior.

pecking him about the head and chasing him about 25 feet, pecking all the time, the youngster, shrieking in fear and (I suppose) anger.

I rescue him from B.

I rescued him and B calmed down immediately and at once wanted more worms which I gave him, and he resumed feeding his offspring and making regular trips to me, though still a little upset.

B shows no resentment toward me, or fear.

I cannot account for his attack on the one bird, and it also seems strange that he should keep on friendly and intimate terms with me after all the fear I had caused.

It looked as if he intended to drive off the youngster, since he chased him clear to the fence, and I wondered if this was a male and B had some sort of an impulse to clear his territory of males in view of his present problem as to the future.

One of the young birds is much larger than the other, but, in the confusion, I could not be certain which. Evidently there is also a difference in temperament already.

They were in the cage perhaps 10 minutes at the most. They cannot fly. not fly at all.

Brownie strange-ly recovers full voice.

10:30. Whether it was the incident of this morning or what, Brownie has recovered his voice, and has been singing full voiced in the bushes, on the ground near me, and up in the old oak.

Sings everywhere.

Still singing.

12:20 P.M. After an hour or two absence I returned. B was still singing at intervals. I approached the bad tempered youngster with

Noisy one is fierce-Other gentle.

the squirt gun, but he would only make disagreeable noises and back away. The other welcomed the offer of food with pleasant twitterings and no show of fear. I think he is the smaller, but, owing to their being some distance apart and in the bushes, can not make a direct comparison.

Noisy one restless.

2:10. Cross-patch is a great wanderer and keeps Brownie busy finding him. I have just finished a determined drive on his cantankerousness. He was even snarling at Brownie and refusing to open up for worms. Each time I approached him, he raised his wings, crouched

low on his twig and made butcher-bird sounds at me, then wandered off
 lights the to a new place. When he at last stood firm enough to allow me to {
 squirt- reach him with the squirt gun, he struck at it viciously, snarling
 gun. nastily, but held his ground. The next attempt brought a similar
 reaction, though he did take some of the food. The third attempt
 excited less resistance, although he still snarled, looked angry and
 calms down. swallowed the food ungraciously. On the fourth and last attempt he
 met me more than half way and accepted the food with comfortable little
 twitters. B watched all this and helped out with a few worms.

I then looked up the gentle bird, Gentle, who has scarcely moved
 a foot for hours. This bird welcomes me with good will and seems with-
 out fear or resentment.

ingling 7:40 P.M. Brownie sang frequently all afternoon and was seldom
 full song. altogether silent. Both fledglings moved from place to place, B in
 constant attendance. When last seen, about 6:30, B seemed to be lead-
 ing them separately to roosting places in the upper garden.

aisy one Once during the afternoon Cross-patch and Brownie came to cross
 barrels with purposes in an Escallonia bush where I could not see them or learn
 the cause. The youngster made a tremendous racket. He has relapsed
 into his former attitude toward me, and even B finds him difficult.
 Gentle. On the other hand, whenever I have located Gentle, he has lived up
 fully to his present designation,

B cannot It was instructive to note that Brownie is not able to locate
 always locate the young birds by sound alone. I found Gentle in a hedge where he
 young quick ly. could be seen only by getting the sky as a back-ground. He began to
 call. B approached and flew up into the tree above him looking for
 him. I called B down to the top of the hedge directly above the young
 bird who was still calling and handed him worms. B then tried to
 locate him, which he did only after running directly away from him
 several times, looking up into the tree, etc. , finally seeing him.

A strenuous day for B. Ground hard and dry.

speculation on The more my mind returns to Brownie's punishment of Cross-patch
 B's punishment
 of youngster. this morning, the more inexplicable the incident becomes. Instead
 of going after me, the aggressor, and defending his offspring who
 was certainly being badly treated by me, he became, in appearance
 at least, an ally; turned against his own flesh and blood and mauled
 him terrifically, all but driving him from the place, being checked
 only by my intervention.

The first impulse is to regard the act as punishment administered
 on account of the youngster's ill behavior under stress and an attempt
 to check an objectionable tendency in its inception. This is too
 anthropomorphic, even for me to accept.

Again, Brownie was much excited, other birds were gathering as
 a result of the din; perhaps he did not recognise his own child, at
 the moment, had to have some outlet for his feelings, felt that he
 had to fight something and this squalling thing, in the glade from
 which he had just been chasing undesireables, was something that had
 to be eliminated if peace was ever to reign again, so without
 reasoning, he acted.

Or, as some birds are reputed to do, he joined in attacking
 another creature already (as seen by him) being attacked.

This is as far as I go. It is a new "pattern" to me.

9 P.M. (Temp. 56; it might be a worse night for the first night out
 of the nest. Max. during the day: 78)

April 4th.

both full song Much singing by Brownie during the early morning hours.
 of Brownie.

About 7 A.M. both of the young birds were located by watching B take
 worms to them. They were about 100 feet apart, and, I think, each

both young take Still in his night roost. Each accepted food readily from the squirt
 food from
 me. gun without moving from his perch; Cross-patch making only one
 faint snarl, then yielding to the inevitable with good grace.

At 9:15 I made notes on a board of B's song at the time, omitting

Big song necessarily a large portion of it which did not lend itself to transcription. This was full song delivered from the top of the old oak and was somewhat coarser than his better efforts, having more consonants. I got the impression that it was "advertising".

Purr-purr-ratchee, purr-purr-ratchee, purr-purr-ratchee,

Pee-pit-yorkit, pee-pit-yorkit; clee-lee-tsipit-yorkit

Prilly, prilly, prilly; kirk, kirk, kirk-yorkit,

Pirrie, pirrie, pirrie, kerp, kerp, kerp-yorkit,

Purr-purr-ratchee, we-oo-hickey, pit-yagcup-yorkit,

We-oo-hickey, purr-purr-ratchey; tsee, tsee, tsee.

At about 4:40 P.M. I looked up the young birds again. One of them was sitting on the edge of the nest! B came up and stepped into the nest.

I offered him food with the squirt gun, which he took, although he refuses it away from the nest. The young bird defecated and Brownie immediately recovered it according to nest-custom, although he gives no heed to the act away from the nest. Here apparently was a reversion to nest behavior on the part of B stimulated by what was probably (?) an accidental return of the young bird to the nest.

Shortly afterwards Dr. Reynolds arrived and I took him up to the nest to witness the return. The fledgling was still there, but sitting on a twig about 2 inches from the nest, back toward it.

At 6:40 P.M. B was conducting his brood to their roosting places for the night. One was led ^{to} the oak in which nest 3 was located and the other to a small pine next to the Dormitory tree. It was dark under and inside of the trees, so that I could not see the worms in the worm box, but B could. The young birds did not hesitate to accept food from the squirt gun under these conditions.

day of song. Brownie sang frequently throughout the day--full song--all differing from each other considerably.

April 5th.

beginning a new day of song? Brownie full of song from early in the morning up to this time, (9:30 A.M.) when he is still singing. His themes differ materially from yesterday and are frequently changed. Just now he leans toward dog- and hen-like phrases and whistling.

birds, then all over oak and alder. The young birds were found (with B's assistance) substantially at their night roosts, both accepting food from me, Cross-patch with one preliminary snarl. B has been feeding one bird at a time then retiring to a high point and singing before feeding the other. He has been so intent on singing and looking off over the country that he has frequently ignored the rather infrequent calls of the youngsters when again hungry. Perhaps he is calling for a mate.

conscious singing. 11.15. Cross-patch is outside the fence in the bushes of the south bank singing. It is not much of a song, but easily recognisable as thrasher music. I heard it at a distance of about 8 feet from where he was concealed. Investigation disclosed him sitting by himself, pumping out a song with the aid of his tail. It is soft, and sweet, and sustained. There can be no doubt of its being true song. This is his 19th. day from the egg, the earliest I have heard any young thrasher sing by about 10 days.

Dangerous place. This is a dangerous place for him, and unless he comes back in I shall have to take steps.

One chick slight- During the afternoon Brownie seemed to overlook him in feeding, although he remained silent. The other bird was stuffed beyond his

looks for needs, so B had to do something with the worms I gave him and clearly singer. was at a loss where to find Cross-patch. He started a hunt after my local supply was exhausted, finally located him in a dense tangle in the chaparral just outside the fence, and within 3 feet of my face. I was sure Be was on the wrong trail, as by this time, the youngster

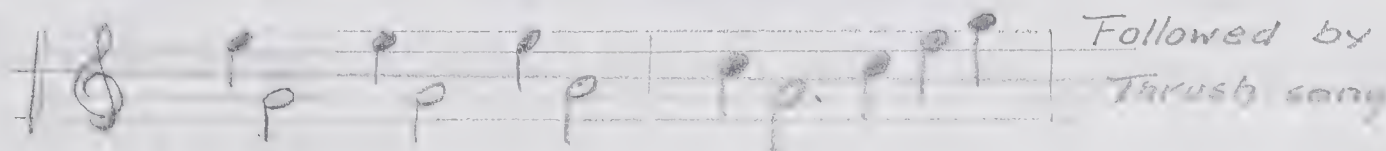
had called once or twice and it sounded about ten feet away, whereas B was working toward me and climbed up the fence "under my nose". I was feeling very superior by this time and a little sorry for B in his fallibility when I was surprised to find myself completely deceived, and B right. Brownie looked him over, apparently thought everything all right and flew to the top of the old oak where he sang beautifully. While he was thus engaged I went outside the fence and worked up through the thorns of the roses and kangaroo thorn until I got within reach of the bird, thinking I might induce him to go back over the fence and expecting a frightful disturbance if compelled to use force. The growth was so thick and thorny that I could not offer him food, so I worked my hand up under him gently, palm downward as he was up so high, touched his feet, and he walked on to the back of my hand, lay down on it comfortably, raking his bill back and forth on it curiously. He seemed prepared to spend the rest of the day there, and, on account of the thorns and twigs, I could not withdraw my hand without scraping him off, consequently I pushed him carefully over the top of the fence without alarming him, then returned to the inside (having difficulty finding him) and gave him food with the squirt gun. He then allowed me to pick him out of the tangle and carry him to the glade without trying to escape, even letting me push food down his gullet en route. He is a much reformed bird.

Breaking the place Except for about an hour during the middle of the day, Brownie has kept the place ringing with song. Stopping only about 6 P.M., at which time I helped him give the youngsters their last meal of the day as they were being seen to their night roosts.

Song more varied and more flute-like tones. During the afternoon his song was constantly varied, but it differed materially from his forenoon efforts. There were much fewer recognisable phrases and it was filled with flute like tones

and whistles. Also he sang tunes which can be very closely approximated on our musical scale. He often sang the Russet-backed Thrushes song entirely apart from introductory or following notes, from beginning to end. He was the Russet-backed Thrush when he sang it. This song has been fixed in my mind since childhood, and if there is one song I can not mistake, that is it. (This bird has not yet arrived here this year).

He also combined it with his tune which has been given in these notes before (See p. 474). A typical combination began with six short, staccato notes, ran into the above musical phrase and then ended with the Thrush song. I cannot correctly represent the lengths of rests, time, etc. the notes, due to ignorance of musical notation, but basically, the pitches as given below, I believe, do not differ from the actual by more than very small fractions of tones :



This is only one of his short combinations. It is appity that they can not all be reproduced with fidelity. If his songs were better known, he would have an international reputation, I am certain.

Wrens have young.

(The little wren that has been eating from my hand, disappeared several days ago, and the nest in the tool house was deserted. I saw wrens carrying food this morning and discovered that they had "stolen" a nest in a house that I had prepared for them--and forgotten--and placed inside of the lath house).

Quail

The quail have scooped out 4 nest(?) holes in the leaves and litter under the rhododendrons in the patio, and the guard call of a male was heard today for the first time this season.

Towhees

In looking for Gentle in his night roost yesterday morning I found him near a new Brown Towhee nest.

Other nest-
ing activities.

I have not searched for nests, but the Plain Titmice were occupying their house weeks ago, the Bush Tits and Nuttall Sparrows and other birds not especially noted have been carrying nesting material for a week or two. (Bush Tits have nested here in February).

Dr. Reynolds showed me a Ring-necked Dove in her nest just over his fence last Sunday.

It is a curious fact that Brownie oftener has difficulty in making the young birds "open up" for worms than I have when offering soft food. He frequently has to tap them on the back of the head,

It is a curious fact that Brownie oftener has difficulty in making the young birds "open up" for worms than I have when offering soft food. He frequently has to tap them on the back of the head,

on top of it, on the rump, on the back, trying all of these places and sometimes trying to lift their heads by placing the back of his bill under their chins and clucking repeatedly. Often after all of this effort they will make one ^{ungrateful} ~~greedy~~ snatch at the food and run away!

April 6th.

At about 7 A.M. both young birds were revealed by Brownie at or near their night roosts. After they had been fed Brownie climbed the old oak and resumed the songs which he had been singing since early in the mornig. I sat under the tree and listened to him for a half hour. At the end of that time he suddenly stopped and dropped down at my feet, then up for worms, totally silent.

This period of full song was characterized by the introduction longer and of more complicated articulated phrases than I have previously noted., and with very pronounced rhythm as in human music. The range over the scale was wide and contrasts almost startling. He might have been a different bird from yesterday.

Many of the customary phrases were used also. The first few minutes of song were largely built around a phrase that sounded like:

Eu-ro-peán

and another new one:

Victim, victim

An entirely new one was:

Pillo-lillo-la, sliding down the scale.

Other new ones:

Yur-keet-tsee-tsee; chee-co-leeta; tsick-a-dear; per-ta, ta
le-e-e-e-ta; ter-wer-ta- le-e-e-e-wa; commute; percute;
chee-co-to-leel-to-ca.

At about 2 P.M. one of the young birds was heard recording at

a distance of 25 feet. I moved nearer and listened for adult phrases previously heard. I caught one, viz:

Purr-pŭr-ree.

I neglected to record that one of the young birds on the first day out of the nest, when first seen in the full sun, immediately "did" an approved sun-fit with one raised wing as if he had been used to it always; evidently an inherited characteristic.

2:30 P.M. Neither youngster has been seen to attempt flight--even downward, although, with the assistance of their wings they can reach a perch about 1 foot above them. Most of their time is spent sitting quietly in bushes, but they also run around on the ground looking like young rails with their bob-tails and long, powerful legs.

A few minutes ago one was seen digging among the leaves with strong side-sweeping strokes in approved thrasher fashion, and apparently picking up things.

April 7th.

Brownie continued his loud calling between feeding periods throughout the day, sitting high in the old oak and scanning the horizon in all directions. His morning songs were of the clear, glassy order, very suggestive of the Western Meadowlark, but not, I think, imitation and also of one of the Redwing Blackbirds, I do not know which.

A phrase frequently heard was:

Pee-ching-ko-ree

— — — —

— — — —

—

April 8th.

B continued his calling most of the day, bringing no evident results. He continues to look out for the young birds carefully. All three are practically in or near the glade all of the time.

I showed B a little gopher snake in the presence of visitors and he chased it until it took refuge under one of them. As previous-

noted undersimilar conditions, he does not seem especially vindictive toward very small snakes. This little fellow was about 9 inches long and a fierce fighter.

April 9th.

I did not go to the glade until about 1:30. Visitors had worn me down to a point where I needed rest. B was singing all the morning beginning at about 5:20. almost continuously. About 1 I heard another thrasher singing under-song near the oval lawn, but could not locate it. On going to the glade, I heard B up in the old oak singing very softly, an unusual place for him to sing anything but full song. Some of the phrases were, as written down at the time:

Fee-chinko-west; wherefore, wherefore; chinkering.

(Note how the first one checks with the one noted Apr. 7th., which it is only fair to say that I had forgotten. This is fairly good evidence that some of the transcriptions are probably not far out).

He fed one of the youngsters liberally, but the other was not in sight, though I heard a thrasher down in the chaparral scripping softly when B returned to the oak. I got the impression that it was an adult bird, and in a few minutes, as I happened to glance in the right direction, sure enough, a full-grown thrasher was entering the brush in the glade and heading toward B's soft calls. This was why B was singing softly. The new-comer disappeared in the old oak and for several minutes there were many soft warblings and much talk. Shortly one of them dived toward the berry patch, saying: pityourki as it landed, and was soon joined by the other. I did not follow them up, not wishing to disturb them. Presumably they are together now, and B's efforts have brought results. Is this Greenie returned, or a new bird?

At 3:45 the new bird was still here, using the drinking facilities in and about the glade, and flirting with Brownie. Once she flew

down from the old oak, landing about 8 feet from me, but left quickly. This bird carries its wing tip droopingly, like Greenie and has the same wider and more prominent superciliary stripe as compared with Brownie. They seem on good terms. Loud singing has ceased, at least, at present, being replaced by soft songs and talk. The new bird has not been seen to pay attention to the young ones, both of whom were in the gl^ade just now.

In coming to me a few minutes ago, B picked up and dropped, the first loose twig he has been seen to touch for s^a long time.

At 5:45 the new arrival was still here.

At 6:30 ,ditto.

April 10th.

Early morning song was first heard at 5:15, of the c^aressing, wheedling type.

At 8:15 I went to the glade; B jumped up into my lap and dropped a large piece of soap-root ribbon in, then fed the young birds. During this process he also picked up large twigs and carried them down the bank in the general direction of Nest 2 of last year, the youngsters running after him, not understanding this new activity. He then went up the old oak and called softly and was there joined by the new bird. They talked for some time, then B went down into the chaparral patch and called softly. The new one came out on a limb of the old oak and looked down on me, but did not respond to my offers of food. She then joined B and he came back for worms for the young, returning with twigs for a nest, apparently the other side of the fern. The new bird came out and began carrying twigs also to the same place, so it looks like a match. I can not tell yet whether the new thrasher is Greenie or not, though she differs from B exactly as G did, as far as can be seen at present. She has appeared to ignore the present brood. With B's new preoccupation, it is rather early to determine whether they will follow him to me for food or not, though there has

been some indication that they would.

10:30 A.M. It has appeared that the nesting activities were in the honeysuckle on the fence. I went to the point which they have seemed to select. B came with a twig and placed it with some others put there previously. It is in the honeysuckle about 4 feet from the ground on the inside at the top of the bank, but the ground falls off below it very rapidly. I stood about 3 feet from it and watched B work, then displayed the worm box and he came at once, taking worms for the young birds. It would seem that he now has his hands full. Just before this, B and the 2 young birds were 3 to 6 feet from me in the glade and the new bird joined the group, keeping the bushes between us so that I could get but short glimpses of her. One of the youngsters ran to her and, I think, was not repulsed.

The new nest is about 30 feet from the last one almost directly in line with it and nest NO.2 of last year.

When the new bird arrived Greenie had been away continuously for 14 days.

3:10 P.M. The young thrashers will take worms tossed to them, but do not know what to do with them, holding them in their bills and running about looking for some one to push it down their throats. When the bird selected for the ceremony is also a young one, they are up against it. These actions are accompanied by the clucking sounds made by their parents when feeding them.

Twice Brownie has been followed to within six feet of me by the new bird, but each time he has turned and snarled at her when she has reached the edge of the bushes.

Twice, with Brownie absent, I have tossed her worms about 10 feet away, and she has taken them. As yet I can only say that she looks exactly like Greenie, but this is only saying that she looks like a thrasher.

They are working a little on the nest to the accompaniment of

warbles, neet-byouicks, nit-yurkis, tork-queelyas, queelicks, etc.

B occasionally climbs into the old oak and sings.

Apr Mar. 11th.

Early morning song was first ^{heard} at 5:15.

There was almost no nesting activity during the day, and the new bird was not seen very often. B called her quite frequently (when he had lost track of her?) and she usually made her presence known within a few minutes.

Once she was repulsed by one of the young birds angrily, though I could not determine the cause. This was while, with the assistance of Brownie, I was making the first real effort to overcome the fear of the youngsters, by stretching out on the ground in a place which they frequent, and depending upon B to bring them to me. Not much effort; but it worked. One took a worm from the palm of my hand and the other took two doses of food from the squirt gun. Both went to sleep on the ground within reach.

They both have Greenie's eye color, ^{and} appear of the same size, but are easily distinguishable by difference in their superciliary stripes. It is the one having this prominent stripe that accepted food from the feeder, the other refused to take food this way, but took the worm from my hand.

Apr March 12th.

A chilly, overcast morning, and I did not go to the glade until after 9, just as B was running toward the nest with material. He changed his mind as soon as he saw me and fed one of the youngsters to repletion with meal worms, but not the other, who was not to be seen. On going to the nest, the other was seen on the ground below it, outside the fence trying to forage for himself. B ignored him at first, making additions to the nest; but when the youngsters, after several futile attempts to get through the fence, finally succeeded and came to my feet, Brownie stuffed him also. In the meantime

nothing had been seen of the new adult. B mounted into the old oak and began calling. Within a few minutes I saw her stealing through the berry patch to the north, toward the glade. When she arrived, B dived down from the tree and they talked in the bushes. He then sat in a rose ^{bush} near the nest and called softly. The new bird ^{him} shortly joined them, but on account of her timidity, I did not approach the nest closer than about ten feet, and remained partly concealed. Rustlings and talk proceeded from that direction, and B began making trips for material. On one of his returns, I accompanied him. The new bird was not there, B working diligently in my presence with perfect confidence. I had noticed that he was gathering fine stuff only, although the nest is a mere shadow. This is contrary to procedure with the six earlier nests. I gathered soap-root fibre and ribbons and distributed it nearby. This was at once accepted by B. The new nest is in a tangle of honeysuckle so thick that with a little rearrangement of the growth, ^{almost} no foundation of heavy twigs is necessary in order to provide firm support. In fact it would seem entirely practicable to begin the nest without any heavy material to speak of, starting with fine material almost exclusively. Examination of the nest itself and B's present operations, show that, to date, this ~~is~~ plan is being followed. Consequently, unless it is altered later, one will, I think, be warranted in the deduction that Brownie, in nest building, is not governed by inherited instinct entirely and thus constrained to follow a preordained plan; but that he is capable of adapting his structure to physical conditions as found--promptly and intelligently--even though it involves radical departure from precedent. It remains to be seen whether this anticipation is to be confirmed. In this connection, it may be noted here that all previous structures at this place have absolutely required firm sub-structures, owing to their locations; that some of them have been reenforced by me, ^{after they were occupied} and that

one of them was shifted a few inches by the birds themselves to occupy a new foundation provided by me. Though in this latter case, it is only fair to say that the birds were crowded in the original chosen location and could not have built a full-sized nest there anyway.

12:30 P.M. As the noon whistles sounded, Brownie was up in the old oak singing after having fed the young birds. Glancing toward the nest, I saw the new thrasher going up to it with material, apparently without any special inducement on the part of B. He came down and the two birds worked together for the first time that I watched.

3:35 P.M. Curiously enough, just three hours afterward, almost the same thing occurred, the new bird not having been seen in the meantime. The only difference on this occasion was that she joined B after working for several minutes at the nest by herself, and B continued to sing.

This bird, tentatively designated as Nova, after the custom of astronomers in naming a "new" star in a constellation, does not behave as Greenie might reasonably be expected to behave (even after an absence of 2 weeks). She makes long detours to get around me, is extremely shy, uses none of the favored perches of Greenie, pays no attention to the young birds, does not come to the food dishes, is much less often in the open, helps much less in nest building at present and is more silent. In addition she seems to keep away from B unless called repeatedly and then usually goes off by herself within a few minutes. I have not been able to see her eye color. Greenie, even when she first appeared here and before she would come for food, showed some inclination to come toward me when invited.

In the nest they are using fibres exclusively, though there is a superabundance of good twigs available. I have had to replace the soap-root fibres three times, i.e.: furnish 3 lots, each a good handful three times in about 4 hours. The nest is already ^{radically} ~~entirely~~

different from any of the preceding ones, being "all" lining.

B does all of the feeding, practically all of the nest building, singing--ditto, and continues to chase the quail out of the glade like a small tornado. Most assuredly a competent individual. When dispersing the quail he seems to be about 3 birds. These events leave no trace of excitement in him, nor is a feather on him displaced.

Apr
March 13th.

11:00A M. All thrashers accounted for. The nest well along and still all lining.

About 10:30 I went to the Henshaw place, in sight from here and about yards away as the crow flies, to look, if possible at the thrasher in a nest, which was reported to be the survivor of a pair, with the possibility that it might be Greenie.

The nest is in an Escallonia about 9 feet above the ground. The bird flew out as a ladder was placed, but returned soon. I went up carefully and saw a bird exactly like Brownie, as to eye color and superciliary stripe particularly. This is the only other thrasher I have seen with B's eye color, at close range. The bird did not appear to be frightened, but when I offered it a meal-worm, slipped out of the nest with a croaking sound (the first I have heard), but not in panic. There were three eggs in the nest. The bird called from a nearby tree and was quickly joined by another; so presumably there has been no desertion here.

^{seemed} The nest ~~was~~ coarser than is usual here and lined with fine root-lets instead of with soap root. ^{was}

No attempt was made during the day to young thrashers, though they were playing about the glade.

Mar
March 14th.

No early morning singing heard.

8:30 A.M. (Chilly wind from the south, temp. 50 plus).

As I entered the glade, the young thrashers came out of the bushes and ran towards me, stopping about 2 feet away, and plainly wanted

food from me direct, though Brownie was not present to give them an example. These notes record the few efforts (the last being on the 11th.) I have made to tame these youngsters. As I was preparing to feed them, Brownie appeared and took command of the situation.

At 10 A.M. as I entered the glade, both youngsters once more came running to me. Nova had just been seen eating from the soft-food dish for the first time and B was in the nest. Before I could test the tameness of the youngsters B came running with a bill full of soap-root fibres (20 more or less) and ran toward one of the young birds who faced him with open bill. I thought, surely B is not so absent minded that he will offer this stuff to his offspring; but he did more than that, he shoved it down his throat! For a moment the youngster looked as if he had a lean shaving-brush projecting from his beak, then shook the mass out disgustedly. It seems clear that B got his reflexes tangled up! I have not seen this sort of thing before. B then started feeding both youngsters with the coarse suet-corn mixture in large lumps. He is getting less discriminating in his selection of food for the young, or perhaps, he is "weaning" them.

Once during the afternoon, B without coaxing, brought his family to me for food with two visitors standing beside me, showing increasing confidence of the young.

April 15th.

Nova occasionally inspects me at a distance of 20 feet or so, but for the most part remains out of sight. She carries a few fine fibres to the nest. Once B, on my knee, called loudly to her from that point of vantage, on seeing her approaching the nest:

Prilly, prilly, prilly; peet-byouick; ca-dah-cut.

A few moments before they had both been at the nest, quite talkative, B giving the hen call and several good imitations of

the chickadee-like call of the Plain Titmouse.

Seen together, the two young differ materially except in eye color. One bird is much lighter about the head, throat and breast. This is the one with the prominent stripe above the eye. Nova seems to differ from Brownie in the same way.

About 3 P.M. Nova came out boldly into the open in the glade and ate from the food dishes about 15 feet from me. B and the two young bird were in the glade at the same time. One of them suddenly developed a full-fledged ability to scrip in adult fashion. Both are 29 days old and 12 days from the nest. Neither has been heard practicing its song for several days.

April 16th.

First Road-runner here. At 8:30 A.M. as I passed the temporary path covering for some small rhododendrons and azaleas by the dormitory tree, I noted a large bunch of feathers, black, white and tawny on top of the structure. As I stared at it, it took recognisable form and I was astonished to see that it was a Road-runner, crest, red spot behind the eye and everything. It slowly stood up, stared at me, then slipped quietly into the bushes, not greatly alarmed. It happened that there was a ten foot pole beside him, and that was about his distance away. I now recalled that I had heard, earlier in the morning, a dove-like cooing that I could not identify, and that Julio had reported to me a mysterious bird dusting in the driveway yesterday.

9:30 A.M. I again heard the cooing:

Coo, coo, coo, coo-oo, coo-oo, coo, descending in pitch and getting softer, with longer and doubled coos toward the end, the last one being a single coo. I found him within a few feet of the same place, and he again slipped away quietly, but not in panic, when he saw me, erecting his crest.

The young thrashers came out with B and opened their bills for food. They are getting tamer, but usually back away as I am about to make the final thrust with the feeder, though not always.

1:30 P.M. The road-runner is still here, "singing" quite frequently. Although he is about 200 feet from here at the moment, I am able to hear his cooing--windows closed, yet his song is soft and low. I expect a decrease in the lizard population if he hangs around much longer.

The young thrashers, or one of them, have resumed recording.

Grosbeaks

Black-headed Grosbeaks arrived today in full song.

April 17th.

Roadrunner.

At 6:30 A.M. the Roadrunner was calling down in the orchard--a very good place for lizards sunning themselves on the walls.

Oriole.

8:30 A.M. The first Bullock Oriole of the season is here. These birds and the grosbeaks have timed their arrival well with the ripening of the Guigne cherries, now showing color.

Roadrunner.

At this time the Roadrunner was seen and heard about 100 yards to the S.E. I went out and stalked him to within 10 feet, seeing plainly the red, white and blue area about his eyes. He came back here. I called Dr. Reynolds to come and see him (and hear him), finding that he had already exhibited himself this A.M. at Dr. Reynolds' house. However Dr. Reynolds came over. I could still hear the bird and thought he was but a few feet from me; but Dr. R. pointed him out to me near the top of a cypress tree about 250 yards away at the Robinsons' directly in line with the Reynolds home. He could be plainly heard at that distance and seen to bow his head when calling.

Heard 250 yards away

We returned to R's house (300 yds. plus or minus). The bird went up and sat on the kitchen chimney-top and sat there for perhaps a half hour, calling at intervals. In calling, he first lowers his head, then "pumps out" his call.

In a half hour or so he was back at my place, and in another like period of time, again up in the cypress at Robinson's about 30 feet above the ground, then back here again.

On his return here he climbed the old oak at the glade and called from over my head for ten or fifteen minutes. Brownie was somewhat disturbed at his presence, eyeing him from the ground frequently and commenting.

It was more or less the same thing during the afternoon; four of us observing him frequently at different places.

We do not seem to frighten him. This really good territory for him, barring cats. Plenty of lizards, cover and open ground, and at one secluded place at the Robinsons' a large patch of prickly pear (cactus) 6 or 8 feet high.

Brownie and his new wife were pretty well concerned with each other during the afternoon, but B came to the glade at intervals to attend to the young, who are now big and strong and gradually coming to me for food on their own initiative, and getting bugs and bees by their own efforts. They do not eat out of the dishes, even when their chins are virtually hanging over their rims, but want B to pick up the food for them and push it down their throats.

They are now playing tag with each other.

"The" fly
is back.

"The" fly has put in its appearance again, crawling on and under the feathers of one of the young birds.

R Age of
young thrashers.

The young are now 31 days old, 14 days from the nest. They can fly, but rarely do. They seem of the same size, have Greenie's eye color, but differ coloration and eye stripe. At least one of them records. They stay in the glade.

The new nest.

No work was seen being done on it today. It is like no other thrasher nest I have ever seen before, being still "all lining" and, as a consequence, looking very small.

Donald Brock's
thrasher nest.

The first one referred to in these notes has been destroyed. A second one he is observing in the same vicinity contains three eggs. This looks like a standard California Thrasher set--3 eggs.

Jay robbing
nests.

Dr. Reynolds saw a California Jay rob the nest of the Ring-necked doves near his fence and fly off with an egg. The doves have built a new nest, this time in R's yard. Today it contained one egg, R feeling under the bird on the nest in my presence without protest from her in word or deed.

This noon I picked up portion of a robin's egg-shell under the pine into which I have seen the robins carrying mud. Jay, or simply a youngster hatched? Julio says that the Jays are in that tree early every morning.

For the first time this year, the robins were noisy long after sunset. Heretofore--if my memory serves--this behavior indicates young in the nest.

April 18th.

Roadrunner.

8:30 A.M. The roadrunner is cooing outside.

10:00 "

He came to a tree about 50 feet from me in the orchard and cooed for about 10 minutes. When he stopped I went up and stood in the open in the driveway. Within a few moments he appeared in the road about 150 feet away and ran directly toward me, stopping frequently, raising and lowering his tail slowly. He approached to about 40 feet then stepped into the bushes in the upper garden. About 25 minutes later, as I stood in the road near the glade, he crossed about 20 feet from me and went up into the old oak. B, who was near me, on seeing him, also climbed the oak, but no sounds of discord proceeded from there and B soon came out for veran, Roadrunner continuing his cooing. I entered the glade and sat down in plain sight of him where he was cooing about 25 feet from me, up in the oak. He sat there preening and cooing for about 10 minutes, B and the young thrashers coming to me for food and not even glancing up at the huge bird. Plainly they were not in fear of him.

Thrashers'
reaction to
Roadrunner at
the glade.

He sat facing me. Each "song" was preceded by a lowering of the head, and each coo was accompanied by a forward thrust of the head, so that the general effect was of a scooping action.

When he flew, the thrashers were momentarily startled, as they would be with even a much smaller bird.

While his throat swells perceptibly when he sings, it does not appear abnormal.

His running is smooth and graceful with no wobbling or lost motion. Although his feet are lifted high from the ground, the effect is that of an effortless glide.

Rufous Hummingbirds.

Rufous hummingbirds here today. The males readily distinguishable from the Allen.

First attack on young by B. by B.

Yesterday I though I noticed one slight repulse of a young bird on of them that

was lying down sunning himself. The youngster recoiled at first, then becoming angry, delivered a fierce counter attack, making harsh noises. B retreated and the young bird lay down quietly in his place and dozed.

Nova threatens but retreats.

About 2, Nova entered the glade and ran directly at this same bird. He took a defensive attitude and she retreated to the soft-food

Nova chases Brownie.

dish and ate greedily. She then began chasing Brownie in and out of the glade, just as noted in the case of Greenie about a week before the first egg was laid in No.6

B is lame.

Brownie is now slightly lame in his left leg (or foot); limping and tucking it up under his feathers when standing.

A few minutes after the attack noted above, he resumed feeding both young birds diligently.

April 19th.

Roadrunner

10:45 A.M. The Roadrunner is still here; at the moment he is sitting on top of the Wickham's chimney approximately 700 yards due south of this room. (257 yds. of this distance determined by transit, the excess estimated). At this distance his cooing can be heard easily. Each "song" lasts 5 to 6 seconds; est., see below.

10:53. He just flew to the ground, having stayed there 33 minutes after first being seen. The top of this chimney must be about 40 feet above the ground level.

11:00 No eggs in the thrasher nest and the preliminary period of occupancy does not appear to have started. B is still attending faithfully to the young birds and there has been no more sparring.

Length of R-r song.

12:03 (An average of a dozen or so timings gives about 4.5 seconds for the Roadrunner song).

B's eye color.

The r. in Brownie's eye is in streaks with a tendency for greater concentration posterior to the pupil.

B's lameness gone. Brownie is no longer lame.

Once he was seen to run at one of the young birds and knock him over on his back, with feet in air, bill open and a comical air of injured innocence.

April 20th.

Roadrunner. At 7:20 A.M. the Roadrunner was cooing in the glade. I wonder if he goes there for food.

Training in self defense. At 8:20, as I entered the glade, B was in the act of feeding one of the young birds over on his back again. He had just fed him from the fresh supply of food. He had been in the preliminary training with the youngsters first and then he had been with him; his youngster got very angry, making harsh noises and the scene in fancied triumph. This is all true to form, except that feeding before fighting has not been noted.

There seems little doubt that, whether consciously done or not, this preliminary sparring is for the purpose of teaching the young that life is not simply a matter of holding ones mouth open and having somebody push food down the throat.--there are obstacles to be encountered and opposing wills to be met. Later Brownie will not "pull his punches" and these affairs will become serious.

No other instruction on the part of the parents has ever been noted here.

B nervous. B plainly showed this morning that he was having difficulty in fitting feeding, fighting and courting into a smooth orderly pattern simultaneously and was inclined to be nervous and jumpy with a tendency to get the operations mixed. His feet are warm again. (Or my hands cold; but I think the former).

"Thinking" begins. At 10:25 B was sitting placidly in the nest.

An hour later Nova was sitting in it, but left as I approached

to 3 feet. She is very shy.

B attacks young R/being fed, feeds other one. As a young bird was reaching for a worm in my hand, B who was in the act of carrying a worm to the other one, suddenly ran back and knocked over the one I was feeding, still holding the worm in his beak and then carrying it to the one which he was feeding. B is rather easily excited and is startled by my movements, at present.

Comparison of young ones. 12:09. Just before noon I sat on the ground 6 feet from the soft-food dish. The 2 youngsters came out and I handed them worms. Both of them have a reddish brown tinge on their backs that neither adult has. The lighter one (with the more prominent eye stripes) shows a little more confidence than the other, looks smaller and I would

B, both help and hindrance in taming young. guess to be the female. B, although the key man of the family, and who has been my principal aid in gaining the confidence of all the broods, sometimes is a disturbing element at the critical moment; for when he sees me trying to feed the young, he prefers to take the food himself and give it to them. Thus when, in B's absence, by the exercise of more patience than I really have, I have one of the youngsters taking an exploratory peck at my fingers, along comes B and grabs the worm. This time, when he observed my success from a distance, he ran up rapidly and gobbled the worms himself, turning his back on the youngsters waiting expectantly with open bills.

Nova begins to see the light. While this was going on, Nova was seen peering out stealthily from the bushes about 20 feet away. I kept superhumanly still and she came and ate heartily from the dish 6 feet away in brilliant sun-light, standing facing me. Unfortunately her beetling brows cast such dense shadows that I could not be certain of her eye color, though the impression was gained that they were redder than Greenie's or the young birds'. However this observation is of little value.

Compared with B. I have several times thought that she was fully as large as B and that her bill was even longer and heavier, and this impression was not dispelled by the close view. On leaving she took food in her

bill as if to feed the young birds, but ran away.

April 21st.

R.R. gone?

The Roadrunner was not seen or heard during the forenoon. Brownie continued to feed the young at intervals, entirely, as far as could be determined, with food furnished directly or indirectly by me. He and his new mate absented themselves for long periods at a time.

During these absences I made progress with the young birds, getting them to gather around me and eat both soft-food and worms. At such time as B came, he would either feed or repulse.

Absent until about 6 P.M. at which time the young birds came to me.

April 22nd.

Rain during the night; the first for many weeks and the first in the experience of the young thrashers, who behaved like veterans.

At 9 A.M. they and B came for food. B ate all the worms offered him and would give his brood none, repulsing them gently or ignoring them completely, even when at his side. Raining.

Later in the forenoon in the presence of Dr. Reynolds, the two, sitting on the ladder leading to nest 6, allowed me to approach them and were eager for worms. B came, attacked one, then came to me with one of its feathers in his bill. Nova in the nest earlier in the morning.

No eggs.

About noon, no bird in the nest, no eggs, B singing short snatch-
es of undersong, in which the Plain Titmouse call occasionally was heard.

Roadrunner
Rumor.

A report has reached Dr. R. that certain persons have been annoyed by the cooing of that bird and that one of them has resolved to shoot it. R will investigate.

The bird has not been reported since last seen at this place,
April 20th.

The rain ceased early in the afternoon and all the birds dried in a themselves surprisingly short time.

3:30. When B approaches the young thrashers with a worm (he is feeding them again when he feels like it) they first assume a position of defense--attitude of defense--changing it quickly to a receptive one if they think he intends to feed them, which he does not always do, sometimes flirting the worm in their faces and then gobbling it himself. He has just carried one to Nova in the nest, after hesitating for a long time undecidedly.

5:45. The young birds are now going to the food dish on their own initiative and eating. They are probably able to take care of themselves now. B has just fed them again.

Brownie has resumed his tactics of following me to the nest and popping into it when it is unoccupied; thus carrying out ^{the} earlier pattern. He first inspects the interior, and does not seem alarmed --- merely vigilant.

The purpose of all of this nest-sitting before the arrival of the eggs is not clear. It would seem that it is either to give it a permanent set in proper form, keep it so, or else ^{it is} merely the operation of a reflex (both sexes doing it). Perhaps neither bird knows when an egg is due or which lays it, or even that there is to be an egg and simply sit in the nest instinctively--their future course to be determined by whatever results from this occupancy.

April 23rd.

At 9 A.M. Brownie came to me in the glade repeating queelick? over and over again very softly and looking keenly up into the old oak. Instead of taking the worm offered, he climbed up into the tree and seemed to be making a thorough search for something.

While he was doing this the young birds came to me for food. B could not have been looking for them, as they started calling as soon as I entered the glade, thus revealing their location in the bushes.

Nor does it seem likely that Nova was the object of his quest, for I went to the nest and found her in it. Incidentally I did not see her at first and was parting the growth within about a foot of the nest before locating her in it. I retreated and she did not fly off. This is the closest approach to her as yet.

What B was looking for was not determined.

No eggs. 12:05. There has been fairly constant nest-sitting this morning on the part of both thrashers, Brownie usually calling and singing short songs when the change of shift is made and not always waiting for his mate to arrive before leaving.

B vigilant. Twice I have gone to the nest when there was no bird in it, each time B coming quickly and settling in it; once on top of my hand with soft cluckings, gently tapping ^{it} with his bill; I suppose in mild protest. However, he readily took the worms offered. No eggs.

Treatment of young bird. When I was feeding one of the young, B came, took two worms, pushed them down its throat, pulled them out again, turned the youngster over on his back (not very roughly) and then ^{trampled him} ~~walked~~ deliberately, at the same time pecking him at selected points, but not hard. A little later he fed the same bird.

About 3:30 P.M. I took a bird-cage to the glade and sat down by it, having dropped a few meal-worms into the sand on the metal floor. Brownie was first to come, entered the cage and cleaned out all of the worms, thumping vigorously on the floor, seeming to like the noise. He went in and out several times and did not seem to recognise the cage as a menacing object.

The darker and larger of the young birds went in a few moments later and was contented as long as I gave him worms. Once he got a little panicky when he had forgotten where the door was, but became calm when I gave him a worm, and stretched out contentedly in the warm sand. I closed the door and he was a prisoner, but did not know it. I let him out shortly and he did not hesitate to repeat.

About an hour later, on returning to the glade, the smaller and lighter bird went through a similar performance, but was a little more frightened on being unable to find the door. This attracted B's attention and when the youngster went out the door, Brownie chased him entirely out of the glade, repeating the performance noted on the first day that the young were out of the nest. I think also that it was the same bird, Cross-patch, though this name no longer is appropriate. I think it is the female and that, on both occasions when B attacked it when it was in distress, it was a manifestation of the strong bird attacking the weakling. This is purely tentative. On this occasion the punishment was not severe.

Later this young bird returned, not seeming to associate the cage with his recent experience in any disagreeable sense, and ate freely from my hand, walking up on it. When the worms were gone he tried to peck pieces out of my palm. A couple of hours before when I would not let B get at the worms in the box, he hammered me hard on the backs of the fingers, but the pecking of the young bird, on account of the sharpness of the bill, seemed about as severe.

April 24th

Roadrunner 9:10 A.M. The Roadrunner (or one like him) is back cooing in the garden now.

No thrasher eggs. Earlier in the morning there were no eggs in the thrasher nest.

B in full song. Expecting eggs? 9:45. Beginning at about 9:15 B was heard in full song and he is still at it. Nova in the nest and B changing position from place to

place, sometimes singing within 20 feet of the nest. I think he has hopes. Occasionally he has stopped to see what I had in the way of food and to worry the youngsters. During this period, also, I have

Roadrunner. observed the roadrunner, who is not very wild, and tossed him bits of meat which he has seen fall near him, but not taken. He has picked up bits of paper, carried them a short distance, and dropped them.

Reaction of other birds toward R.R. The Wren-tits and Spotted Towhees, who have young, follow him

about, presumably with good reason, and scold. I came upon him once when he was sitting on top of a wall looking up into a Hakea from which these birds were uttering their cries.

Hummer buzzes at B. During this same period also an Anna Hummingbird was seen to

buzz in B's face as he sat near the nest facing it. B watched him indifferently, though at present he is somewhat excited.

Roadrunner. The red near the eye of this bird was noticed at about 100 feet distance. Also the white, but not the blue.

I catch one youngster. 11 A.M. As one of the young birds went into the cage I shut the door. This was the smaller, lighter one: "Little Greenie". We wish to determine if we can establish another Thrasher Territory at the home of Dr. Reynolds--I have a permit to keep three thrashers. The intention is to keep them in a large aviary there and then release them, probably when the sexes are determined, exchanging one of them for one of another brood in order to get an unrelated pair.

B's reaction. When I took Little Greenie in my hand "she" set up a fearful outcry. B and the other little thrasher, Little B, came rushing up, B much agitated. I carried Little G over to R's, B following me for not less than 200 yards, calling and singing musical phrases, and released her in the aviary, where she soon calmed down.

B tame as ever. I was anxious to observe B's attitude toward me on my return. As I passed the nest one bird was in it. When I entered the glade B came at once to my knee, seeming to have forgotten all about his recent bereavement, as friendly as ever. He then fed the remaining youngster.

I catch second youngster. At about 11:30 I caught Little B in the same way. He was not nearly so frightened and, although he made a little noise and B came, the latter did not follow me as I carried the young bird over to R's.

Both adults in nest. At exactly 12 I looked into the thrasher nest. Both birds were in it. Once or twice they raised themselves and probed around below.

B looks for in 21 minutes B left and came for worms. He then took a billful his brood. into and went off in the bushes in the glade calling for the young birds with the "blue-bird" call. Poor B. Evidently he can not fit all of his own observations together and arrive at the correct answer.

Young back to 2:30 P.M. Just returned from R's. When I approached the aviary, normal. the young thrashers began to call. When I entered, they came to me for food, having apparently either forgotten or forgiven my treachery of the forenoon.

Nest occupied 6:00 P.M. On every visit to the thrasher nest since 9:15 A.M. it continuously. was seen to be occupied. By all precedent this should mean one egg.

Youngsters I visited the young thrashers twice more during the afternoon, both adapting themselves. times they came readily to me for food. They are not trying to escape, and have found good places in which to rest quietly and doze. They seem to be adapting themselves quickly to their new environment.

April 25th.

R.R. At about 6 A.M. the road runner was heard cooing in the direction of the old oak.

Young birds About 7:30 the young thrashers at R's seemed quite contented, taking happy. worms from our hands. As noted many times, once tamed, they seem to make no distinction between persons who offer them food and make no quick movements.

Roadrunner. At 8 the Roadrunner was still here, cooing from the top of the old oak, preening and sunning. He made no objection to my approaching and standing below him in the open.
At 9:30 (time of this entry) he is still in the oak cooing. He has spent certainly not less than an hour there this morning.

B's long shift. B seemed to occupy the nest from about 7 to 9, as he was the only one seen in it. At 9 shifts were changed. I expected B to sing after he stretching and eating, but he did not. In fact has not been heard to utter a single sound this morning.

B silent. At 10 A.M. Brownie was on the nest. I handed him a worm and then felt under him. He seized a finger and bit as hard as he could and would not let go as long as I fumbled around him, and would not ease

up to give me a chance. He was as solid as a rock. Owing to the position of the nest, I have to put my arm through what amounts to an arm-length tunnel full of tough honeysuckle twigs. With these obstacle and Brownie's holding on to me like a bull-dog, I could feel under one ~~probably~~ side of him only; but there was at least one egg there, possibly two.

One or two eggs.

When I withdrew my hand, B still held on to my finger, but finally had to let go. I then handed him a worm as a peace offering which he readily accepted. He seems to have a pretty definite conception of the extent to which he will allow his dignity to be imposed upon.

R.R.

10:20. Roadrunner still in the garden cooing. (In the old oak--I hope he has no designs on the thrasher nest). I shall get a camera and try to get a motion picture of him.

4:15 P.M. A little before noon the camera was set in the glade and trained on the Roadrunner's favorite stub branch, but the bird was not even heard.

One egg only?

Just now at change of shift, B going on, I could see but one egg in the thrasher nest. I felt under B, as I was not certain that there was but one on account of the half second-glimpse that I got. Only one could be felt, but B's legs were like iron. I am not certain now that there is only one, but it is to be noted that there has been

No singing. absolutely no singing today, so perhaps there was no egg laid this morning. Or perhaps none yesterday, etc., etc.

Nova's eyes and color.

Nova's eyes look larger than B's and she is much lighter about the head and throat. I believe they are the same color as B's

The young thrashers now have a sand-box in R's aviary and are delighted with it, lying in the warm sand and napping.

April 26th.

There was early morning song (about 6), but none later than 8. No signs of the Roadrunner today at this place.

FILMS

1:40 P.M., 7 feet of Black-billed Magpies, 5 to 6 feet away in cage. F8 stop, using F1.9 lens.

93 to 88, 5 feet, 3" telephoto lens, f 4.5 set at f 11, with color filter as sky was background: The new thrasher, Nova, on stub limb of old oak about 25' away.

88 to 84, 5 feet, 3:10 P.M., the same, Nova scripping, same place

84 to 75, 9 feet, 5' distance, 1" f 1.9 lens, stopped to f 8 :
Oof singing and courting.

75 to 65, 10 feet, 00f at 4' dis. on ground.

65 to 54, 11 feet, 10' dis., 3" telephoto lens, stopped to f 8 :
Rear view of Brownie eating out of dish.

54 to 50, 4 feet, same place and lens: Brown Towhee eating out
of dish.

50 to 45, 5 feet, " " " : Song sparrow.

The Road runner did not appear all day.

April 27th.

Early morning song around 6, then no more.

Roadrunner not here all day.

April 28th.

Figure 1. The effect of the concentration of the polymer on the swelling ratio of the hydrogel.

ABOUT 10 : 30 , slightly hazy:

15 to 3, 100 ft. line, f 1.2 lens; stops from f 8 to f 1.9, the latter in dense shade: Prairie and Gopher snake.

- (1) Greenie was a young bird, as the earlier notes suggested.
- (2) The adult iris color is a brilliant orange brown, but:
- (3) This color is not attained even up to the time that the birds are sexually mature and are rearing broods.

When Greenie was first seen nearby in Sept. 1936, she certainly could not have been younger than a bird of that year. As the color was still unchanged when she disappeared in late March this year, it would seem that:

- (4) The adult coloration is not attained earlier than the third calendar year from the nest, and possibly later.

April 29th.

none.
No early morning song heard, but this does not mean that there was no Roadrunner.

Brownie goes and fights the box that the snake is in, tries to dig under it and is very theatrical about it.

I have made no attempt to tame Nova.

The young thrashers continue friendly and happy in R's aviary. Neither has been heard recording there. They are still quite juvenile in appearance, though big and strong.

Both have Greenie's eye color still, but are easily distinguishable.

April 30th.

There was early morning song, and during the day B occasionally climbed the old oak and sang a few bars.

Roadrunner. About 10 A.M. when I turned the hose on to a clump of shrubs near the entrance, the roadrunner ran out and off along the sidewalk. Though still in the neighborhood, he seems to remain silent.

The propriety of B's building the new nest without foundation is now doubtful, as it is sagging considerably on the side where the birds usually enter.

7:30 P.M. Rain began to fall about 7 P.M.

Light on Roadrunner Saw Mr. Brock during the afternoon and on telling him that the roadrunner was back again, learned that a man, name not mentioned, had brought to him a roadrunner in a sack caught in this vicinity, and had been warned to release it again where he caught it. By comparing times, it seems probable that it was the same bird.

May 1st.

Brownie (probably) was heard singing from place to place early in the morning.

About 9:15 I visited the little thrashers at R's. Before I left them, they were both flying to my hand for worms quite freely. This is the first time they have done this.

They are now 44 days old, have Greenie's eye color, have a little more tail length due them and a lot more length and curvature on their bills. They are much lighter in weight than B (as determined by "hefting" them), are smaller and redder on their backs.

A.R. again.

At 11 o'clock, while thinning peaches in the orchard, I was startled by a light rattling sound followed by a hollow note almost at my feet and the roadrunner popped out, running slowly away with backward glance at me. He seems to have ceased calling. The rattling sound is said to be made with his bill.

The young thrashers, Little B and Little G, are becoming delightfully tame, coming readily to hand, and beginning to take liberties, such as: lighting on ones head and pounding away merrily.

May 2nd.

Early morning song by Brownie.
color

9:30 A.M. Nova's eye is definitely the same as Brownie's; consequently there is no permanent difference in color between the two sexes. There may, of course, be individual differences among other thrashers, but I have not observed this as far as I know.

The fluorescence of the pupils of the young birds seems to disappear about the time they leave the nest.

N's eyes are larger than B's, almost certainly.

The youngsters, about 9 A.M., showed no objection to three persons in the cage at the same time, coming freely to hand. Dr. Reynolds suspected that they were differentiating ^{in the matter of associating persons} between persons. I have not thought so--except perhaps where there might be a striking difference between the appearance and action of the individuals concerned, and their manner of approach to the birds. I would like to think that they do, but have held, as regards thrashers, that, when having learned to associate persons with food (or vice versa) the individuality of person offering it is a matter of indifference to them, provided that

the offering is made in the manner to which they have become accustomed. Thus on the present occasion, with three of us standing in a close group, after the birds had overcome their initial shyness on our entry and were flying from their perches to my hand for worms, an offering by Dr. Reynolds (of the only worm left) was accepted in exactly the same way, with the same promptness and lack of restraint.

Changing Shift.

The notes immediately following cover the first carefully observed change of shift performed by Brownie and his new mate, the times are accurate within a half minute at least. Brownie was in the nest.

11:45. Nova, to the north, calls: Scrip, scrip, scripit, this being the only sound made by her during the change as far as could be determined.

B answers instantly: Pit-yoor'ki, pit-yoor'ki, berra-chee'-cup, berra-chee'-cup, ber-cheet', ber-cheet', ber-cheet'.

(The yoor plaintively and the cheet loudly and imperatively).

11:48. B calls softly: Ber-cheet', ber-cheet', yerr'rick, yerr'rick.

11:52. B softly: Chooch, chooh, berra-cheet'.

11:53. " " : Yerk, yerk, repeat', repeat'.

11:54. " " : Yoor-a-wheet', yoor-a-wheet', yer-r-rk, yer-r-rk.

11:55. " " : Pe-cheer'it, pe-cheer'it, pit-yurk'it, pit-yurk'it.

11:55½ " " : Yer'-r-ick, yer'-r-ick, berra-tsee'-cup, berra-tsee'-cup, pit-it-cheenk', pit-it-cheenk'.

11:56½ " " : Pit-yerk'it, pit-yerk'it, repeat', repeat', ter-ter-cheenk', ter-ter-cheenk', turk, turk.

11:56½ Confused warblings mixed with berrachee'cups, ter-ter-tinks' and turks. Nova enters nest and B comes to me in the glade.

May 3rd.

No early morning song heard.

The young birds at R's very tame and friendly.

About 11:30 one of them was heard practicing his undersong. The

notes were low in pitch and liquid in quality. In a few moments the bird came out of the brush, lay down facing me and continued for a very short time, when it was seen to be Little Greenie, the suspected female. This is the first time for a week or two that I have heard either of them record (unless the notes show otherwise).

May 4th.

Changing
shift--another
type. A little early morning song.

Another type of shift was observed during the day with Nova going off duty. When she heard B's approach call she left the nest and climbed the old oak, scripping for several minutes, B entering the nest within a few seconds. After foraging less than 5 minutes, she returned to the nest and B came for worms.

another
shift.

May 5th.

Some early morning song.

At 11:38 A.M. Nova on the nest, partly standing, as it was rather warm.

She called: quelk, quelk, quelk, torkeeta, torkeeta.

At 11:52 Still partly standing, no answer from B.

11:54 B's approach call heard.

11:54½ Nova climbs old oak and scrips for a few minutes, Brownie making soft musical sounds from the nest.

11:02 Nova returns to the nest after a little foraging, and B comes for worms.

This loud call from the nest by Nova was the first such call definitely traced to her.

May 6th.

Early morning song was heard at intervals.

At about 9:30 Nova was in the nest. As I was watching her, Brownie called from some place near:

stick-too-it, stick-to-it.

This is a comparatively new call for him. Instead of calling to

the nest, he was heard and seen a few moments later, in the top of a cypress about 125 yards away, on the way to Reynolds Territory.

I went over there, incidentally, with the Dr., playing with the young thrashers who are now tamer than Brownie or any other of his off-spring[?] and very cheeky. The stick-top-it call was heard near at hand and a thrasher came out of the bushes, then disappeared again.

I returned here, Nova still on the nest. I waited, keeping watch in the direction of Reynolds Territory. In a few minutes, scripping was heard, a thrasher came sailing down from that direction and ran into the glade. Brownie, as expected. This observation made in order to get a check on his wanderings. This sailing flight, a hundred yards or so in length, all down hill to the street, accomplished without flapping the wings, was the longest continuous flight I have seen; usually this space is covered on foot. Undoubtedly the long tail makes up for deficiencies in wing area.

R.R. back again. 11:45 A.M. The roadrunner is back at this place again; this time flushed near the lath house where I was watering. He has not been heard to coo for several days. It is 3 weeks since he was first seen here.

May 7th. There was early morning song. Incubation on the one egg proceeds regularly. Occasional song during the day.

May 8th.

About 5:30 A.M. I became aware of loud and persistent thrasher song nearby. This kept up until about 6 when it slackened off, but was heard at intervals until after 7.

I am wondering if Brownie is tuning up in anticipation of the hatching of the egg, now about due, or whether I just happened to be awake. (Sunrise 5:07).

There has been no undersong at all for many days.

May 9th.

A good deal of early morning song.

About 2:30 I thought I heard sounds of changing shift and it seemed a good time to see if the egg had hatched. When I got there the nest was entirely empty, but Brownie came and sat in it as if everything were all right. I then went down into the chaparral to see if there were any signs either of the egg or of a young bird, and finally found the large end of the shell, but none of its contents. The appearance of the shell indicated that it had hatched normally, and I believe that the young bird was carried off by a jay during temporary absence of the parents. I was working near there all the morning and heard no disturbance. The egg was in the nest at 6 P.M. yesterday.

The road runner was back again yesterday and today, but silent.

May 10th.

Much early morning song.

Also the road runner was heard at the same time. I had thought his singing period was over and that he had either found a mate, or had given up the attempt.

Brownie has been singing full song at intervals all during the morning.

12:30 P.M. Brownie seems to have had his tongue loosened by the bereavement and has taken a fancy to singing near the oval lawn.

5 P.M. B has been singing full song beautifully much of the afternoon. Part of the time at a new station near the oval lawn, where I could listen to him comfortably at a distance of about 25 feet. He has many new phrases and much of his song was more like that of the mocking bird than previously noted.

He has developed a new stunt. He takes up a convenient location and sings. When his mate comes, he moves off and sings at another place, and when she follows, repeats the performance. It gives one

the impression that he is leading her purposely from place to place with a view to selecting a nesting site. Once he led her thus down into the canyon on the west, but was back again soon. It is not like the pursuit tactics noted on the part of Greenie. In this case B seemed to be inviting his new mate to follow.

May 11th.

No early song No early morning singing was heard.

At about 7:45 Brownie was industriously sweeping the oval lawn with his bill and not interested in me.

B shows where new nest is. I went to the glade and sat down. In a few moments he came running

to me, jumping to my knee with a plaintive gurgle, ate worms and ran north from the glade, across the drive way to a small, dense oak. perhaps 40 feet from my chair. By the time I got there he was up in it placing twigs in a new nest!

Nest NO.8

Unusual incident. About 8:30 I went out to see how things were progressing. B

was busily engaged on the new structure, which is already taking nest-like form. I stood in the road about 15 feet away and showed him a worm. He came at once, ate a few, and then gathered up a half dozen, placed them on the ground by my hand (on top of the bank by which I stood) prepared them as if to feed young birds and carried them directly to the nest. (The first incident of this kind noted). He then looked for some one to whom to feed them--in the nest--then came down, ran and flew off toward the dormitory tree and I did not follow.

B gets his associations mixed.

Speculation. This incident seems to indicate that Brownie got his reflexes, associations, instincts, complexes, or whatever they are, badly mixed. But for the disappearance of the incipient family in nest 7 day before yesterday, he would have been busy feeding the young bird now. But that disaster removed such necessity and brought to the fore the nest-building instinct which he was engaged actively in exercising when I appeared on the scene offering worms in abundance. This was too

complex a situation for him to unravel on the spur of the moment and I imagine that he acted automatically in response to the reflex which was most powerfully stimulated at that moment by the group of associations with which he was confronted, viz: an old friend bearing food, at a time when feeding of nestlings with that food, but for an accident, was in order; a nest of his own nearby with which he was preoccupied. Thus: A friend bringing food, nestlings to be fed in a nest; here's the nest.

When he went off from the nest, I suppose he remembered his new wife(who was not there) and intended to take the worms to her, which would not be out of line with past observations.

During the rest of the day little work was done on the nest. All of it so far has been done by B.

This is also a period of courting with snatches of full song heard from various directions, and occasional song of fairly long duration near at hand. Nova is seldom seen and B seems to have some difficulty in keeping track of her. He is also beginning to talk a little again when he comes to me.

May 12th.

Much wandering full song during the morning, early, and throughout the forenoon, occasionally becoming stationary at favored places, like the vicinities of the new nest, the old oak, and the oval lawn.

About 8 A.M. Brownie was carrying twigs up to the new nest, which in this case, is following standard practice by beginning with a foundation of sturdy twigs, mostly oak and Baccharis.

3 P.M. B is visiting the nest at infrequent intervals and placing twigs, also calling from there at times. Earlier in the afternoon he favored me with a beautiful three-quarter song, rendered in the open, facing me about 25 feet away, lasting--including-pauses--about 10 minutes. He then went off to round up his mate.

Just now he came to me in the glade with new talk, plaintive and

soft, perhaps not audible more than 8 or 10 feet away. I believe that this growing loquacity when with me is merely a reflection of his present song cycle, stimulated by the mating instinct which is now to the fore again.

It seems strange that there is no sub-singing by either bird. Also unless Nova "loosens up" soon with recognisable song, I shall be inclined to question whether female thrashers, as a rule, are singers, notwithstanding Greenie's undoubted accomplishments as a vocalist.

May 13th.

No early morning song heard.

At about 8 A.M. Brownie was working silently, all by himself, carrying twigs to the nest, but came promptly for worms.

At 9 A.M. he was sitting quietly in it with only his head showing. When he saw me, he climbed down deliberately, walked over to me, jumped up to my hand, looked into my face, then reached for worms. A few minutes after this he was carrying soap-root for lining. This stage of the work has been reached very quickly. All this morning B has maintained a clam-like silence and is all business. Nova has not been seen this morning.

If all thrashers were like Brownie and there were no casualties, there would soon be no space left in California for thrasher nests!

9:50. Brownie seems to have gone to search for Nova. At 9:35 he abandoned his policy of silence, climbed the old oak, faced toward the west and began singing loudly detached phrases of full song having an imperative quality. At 9:38 he sailed down, headed west. (In the meantime, the magpies, against whose cage I was leaning, were hammering me on the back and pulling my coat). I followed the route I thought B might have taken, as determined by his retreating voice, and located him approximately about 200 yards from me and about the same distance from the nest in addition, still singing. I waited for some signs of success on his part, then came in to make this entry, leaving him ¹⁵⁰ still down in the canyon.

At 10:10 I went to the western line of the property to observe B's return and note if he was successful in getting Nova to accompany him. Shortly I heard his voice nearer and nearer and he passed me about 40 feet away headed in the general direction of the nest. I waited until 10:15 to see if Nova would follow, but she did not appear. I then went to the nest, finding B in it, singing softly at intervals apparently to himself. Arrival of visitors prevented further observations.

1:25. Since the foregoing note B has been back and forth between the nest and the canyon several times. Evidently Nova has a mind of her own.

1:35. 5 minutes ago a bird was sitting quietly in the nest. When it came down it was seen to be B, undecided as between lining and worms, the latter winning. Between worms he kept looking up at the nest as if expecting a goblin to pop out of it suddenly and was plainly nervous about something. Finally he went off to gather lining calmly. No Nova in sight.

At about 2 P.M. Nova walked out from the bushes on top of which B was preening.

About 4 P.M. two of us were sitting near the oval lawn and I heard the Russet-backed thrush song a short distance away, remarking to my companion that that was a thrush, adding immediately a reservation to the effect that it might be Brownie (who had not been heard for some time) and was supposed to be down in the canyon) when B, himself, stepped out on to the lawn. I called him over (across the space he does not like to cross) and he jumped up on to my foot which was on one knee, and sang the thrush song beautifully. "right in my face". This he repeated with other phrases, then hung about the lawn and the bushes singing over and over again, perhaps two dozen times, a combination of which he appeared to be especially enamored at the time, viz:

Odd combination in B's song.

First: The Russet-backed thrush song, followed by:

The tree toad cricket-crawket twice repeated, then a few clear notes of his own. Next the explosive pitch-it-it of

Contact(?) song.

the ground squirrel, not repeated, followed by a few phrases of his own. This combination was repeated almost without change, except for the finishing phrases which were varied. The volume was $\frac{2}{4}$ to full. It developed that all this was for the benefit of Nova who was occasionally glimpsed skulking in the bushes near him. I do not know the terminology used in describing bird-song, but I should consider this as a contact song perhaps.

May 14th.

Early morning song not heard by me.

Another type of contact song.

About 10 A.M. Brownie had apparently lost contact again, so he stopped working on the nest, climbed the old oak and sounded off, gradually working westerly. He had forgotten all about the phrases with which he was so much smitten yesterday, and used the following ones: (with some I could not catch):

Pitteek-cure ; pitteek-cure-tseep; tsee-poo; (the tsee about an octave higher than the poo--both short and staccato). The old berra-tsee-cup and peet-byouick; a new one:

Weet-tork-queet.

Roadrunner.

1:30 P.M. As I drove along the street in front, the roadrunner ran in front of my car and up into my garden.

B was again apparently out of touch with his new wife. He is now on his way to the canyon singing still another combination of phrases which I could not catch. **I wonder** if he is in somewhat the same straits as Peter, Peter, Pumpkin Eater.

About 5 P.M. I thought I would see if, by any chance, the roadrunner was making the chaparral bank his headquarters, not having seen or heard him since 1:30. I did not think there was one chance in a thousand. However, he was soon located, sitting quietly in a

dense bush overhead, his white belly having attracted my attention. I was not able to identify him by that alone, it being necessary to shift about to get a view of his upper-works. During this time he remained absolutely "frozen", and I left him in peace.

May 15th.

Early song.

There was some wandering, early morning song. Both thrashers spent most of the forenoon down in the canyon to the west. As determined by feeling inside of it, the nest seems to be practically completed, although up to the time of the laying of the first egg, the birds usually add a fibre or two now and then.

R.R.

About noon the road-runner was prowling about the lath house.

A
Thrasher nest
with 4 eggs.

Donald Brock advises that the second thrasher nest which he had under observation contained 4 eggs, and that the young have flown. Something destroyed the first nest.

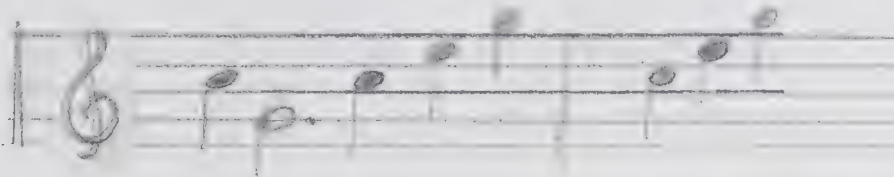
Mrs. Grinnell, Miss Blanchard and Dr. Grinnell came during the afternoon to see the thrashers, but B and his mate persisted in staying down in the canyon and were not even seen, except by me earlier in the afternoon. Perhaps they were taking a vacation as a preliminary to the serious task ahead of them. Neither bird was seen at the nest all day, and I have been wondering whether Nova's apparent preference for the canyon might induce B, in his infatuation, to abandon the present structure and build down there.

May 16th.

Early morning song was heard. About 9:30 I heard Brownie's contact song and went out. He seemed a little shy at first, but soon was on the usual familiar terms. His mate must have been near, as he frequently went into the bushes to confer with her and made short visits to the nest as if trying to induce her to follow. This is conjecture. This morning his music again differs from that of the last few days, in that the ka-shh-cut and the cut-cut-ka-shh-cut of the hen have reappeared.

10:15. B was sitting quietly in the nest as I passed by, but

called, then joined me in the gladg. without being called. His mate was glimpsed nearby. B, after eating worms, climbed the old oak and began to sing and call, ranging in volume from very soft queelicks to full voice. Many of his phrases have not been previously noted. His principal theme, however, was built around the clear, ^{rippling} flute-like phrase recorded in musical notation on page 474, but with the last three notes repeated, thus: (Subject to technical correction)



This was used many times. Other phrases were:

Perrick, perrick, tsip-perrick,

que-air, perrick, clip-clip,

Peelick, peelick-q-u-a-i-r-y.

Yer-peat-yer.

Eat-you, peet-you, cleet-you.

At 10:30 he worked his way to the westward, still calling.

At 12:00 he was sitting quietly in the nest, with no signs of his mate.

No activities at the nest were observed during the afternoon. Both birds were believed to be down in the canyon to the west most of the time.

Little G and Little B at Dr. B's are tame and friendly. The latter is more strong and active. For about five minutes Little G sang a sweet, low warbling song while lying down.

May 17th.

A lot of early morning song.

When I went out about 8 Brownie, who was singing from the top of the old oak, dived down to me promptly for food, then to the nest, in which he sat for some time, touching it with his bill here and there. A little later both birds were at it, but Nova left when she saw me.

I catch only occasional glimpses of her, as she stays down the canyon most of the time. (?)

At 11:45 Brownie sat in the top of the old oak singing, amongst other phrases:

Stick-to-it, stick-to-it, stick-to-it, torpeeto, quare, torpeeto-quit, tsip, eat-you.

He then came down to me through the berry patch, then to the nest where he dozed for a time with eyes closed.

At 11:45 he called softly from the nest:

Ber-wick, ber-wick.

At 11:46 (about):

Ber-wick, Ber-wick, tsip, tseeah.

11:57.

Stick-to-it, stick-to-it, by-wick.

He left about 12 M, headed west. I went immediately to the western boundary of the property, about 150 yards from the nest, to see if he would come back. He did not. In a few moments, he sailed grandly over my head to a bush outside the fence, singing there. When I called him, he considered coming back, but at about 12:04, scripping was heard further down the canyon, and he left in that direction. Two voices could be heard, gradually receding, then loud song, estimated at not less than 200 yards from where I was.

with Nova, but he did not. She is having a bad influence on, I fear.

7:40 P.M. At about 7:05 I looked for evidence of the thrasher's return from the canyon, wondering whether Nova's attractions were weakening B's attachment for this place and whether he roosted here now, etc., when I heard thrasher talk near the glade. I went there, called, and B came running to me confidently, taking worms and making low calls. He then climbed the old oak, called softly, dived down into the glade, whence thrasher talk issued. Evidently Nova was there.

Soon all was quiet, but B came out again, saw me standing in the road near the dormitory tree, and although it was fairly dark under the trees, again ran to me (about 50 feet) for more worms. He then began inspecting the trees from the ground, finally decided on the dormitory tree, climbed up into it, and when I looked for him there at 7:30 he was comfortably installed for the night in the same roosting place where he was first seen months ago, and, I believe, on the identical branch. Nova, I think, is roosting in one of the trees bounding the glade.

May 18th.

Up to 10:30 A.M. no signs of either thrasher, no singing, except in the very early morning, down in the canyon.

11:35 A.M. Still no signs of either bird.

I am about to leave for a short trip up into the Sierras and will have no opportunity to make further notes for 2 or 3 days. This will be the first interruption since daily notes were kept.

May 19th. and 20th.

Julio reports that, during my absence, both birds were seen more or less frequently, Brownie, only, being seen on the nest. B would not come to him for worms, but would take worms tossed to him. Nova would "hide".

May 21st.

10:35 P.M. Just returned. Brownie was found occupying his regular night roost.

May 22nd.

Neither thrasher to be seen about 8 A.M.

10:30 A.M. On returning from an errand, B was seen sitting in the nest. He would not come down on call, but a few minutes later, when seen on the ground, he came to me as usual. Thus it appears that a short period of about four days during which contact was not established, is not enough to affect relations between us.

About 10:30, B called his mate several times from the nest and was answered by her in recognisable thrasher phrases. B seems to be doing all the nest-sitting.

11:30 . Roadrunner still here.

12:00. B sings from the top of the old oak, dives down to me, jumps to my lap, eats worms and then goes to the nest and at 12:15 is still sitting in it quietly. The reason for the nest-sitting of the male, when there are no eggs, is not evident.

1:30. B has been singing a great deal since the last entry. Just now he was singing near the oval lawn, using high-pitched, flute-like trills--an entirely different character of song from that usually heard with none of the more common phrases. When I stepped out into the upper garden, he stopped singing, ran and flew up to me, jumped up to my hand as I stood on the lawn, then down to the grass at my feet, alternately digging lightly and continuing snatches of full song of his latest type. He then ran off toward the nest, calling at intervals. I am inclined toward the view that, for the present at least, his nest-sitting, calling and singing from there as well as from other points nearby are all intended to induce his mate to take up house-keeping at once--actively. Incidentally, I believe that he built this latest nest entirely without assistance from his mate, and that she is either not ready to lay eggs or "does not want to".

It will be noted that Brownie's present behavior is radically different from that of the few days preceding my trip into the mountain and that he is "tamer".

May 23rd.

No early morning song heard. Neither thrasher was seen by me during the forenoon, perhaps because I was occupied with other matters most of the time.

At 1:30 P.M. B was sitting in the nest. He called--was answered--then left. Within a few minutes he was back again with his mate,

both going up to the nest and inspecting it as I left.

I was busy with other affairs the rest of the afternoon.

At 7:10 P.M. Brownie was seen in the road near the glade. He ran to me for worms, then took three down to the glade, making his approach call. (Taking them to Nova)? After this the actions of going to his regular roost (at 7:30) recorded yesterday, were repeated, except that, this time, he chased a robin out of a tree first.

8:15 P.M. Little Greenie in R's aviary, the frailer of the two young thrashers, has not been looking and acting well for a week or more. I caught her by the simple expedient of sitting on the ground with an open cage beside me and closing the door when she walked in for a worm. It was several minutes before she was aware that she could not get out. In the meantime she was reaching through the bars for worms. I covered the cage with a cloth and brought her here, not very much frightened, to observe her better and see if anything could be done to help her; keep her warm, etc.

In the morning she seemed better, but was more oppressed by her captivity, so I took her back to R's. When I let her out she did not rush out precipitately, but sat for a time on my hand eating worms. When she approached Little B there was a pretty stiff fight instantly. A little later there were two more. It is uncertain which bird initiated them, but in any event, Little G did not avoid them, and I think in at least one instance she started it. Little B was clearly the stronger. Still later they fondled each other with their bills and talked in pantomime face to face.

As the day progressed she appeared to get worse and I again caught her in the same way, without handling, and brought her here. She is now in a covered cage, electrically heated slightly (thermostatically controlled) and supplied with special food recommended by Mr. Brock. She has been the weaker, although tamer, bird from the first May 24th.

May 24th.

No early morning singing.

As I was busy I scarcely saw the thrashers all day, but at about 7:30 P.M. both appeared at the dormitory tree, B going to his accustomed roost and his mate elsewhere--not located.

The little thrasher has not improved.

May 25th. raining.

The little thrasher is weaker, if anything, but very tame and friendly, often answering me with ^{chirps} ~~serips~~ when I talk to her.

4 P.M. I have not seen the adults today.

Little G is very weak and is mere skin and bones, and now beginning to refuse even worms. I just noted "the" fly sitting on her head and wonder if this creature carries infection.

I have talked with Mr. Brock, and, as a result, have given her a very small portion of the custard used with the young birds of nest No. 5. As she would not eat it, it was put far down her throat with the feeder.

5 P.M. She seems stronger. Her excrement has changed from grey to a rusty brown and is more copious and thicker. She was given another very small portion; after which she ~~breached~~ ^{breached} for a worm.

6 P.M. She was sitting on the perch (hitherto she has remained on the bottom of the cage) and appears to be looking for a still higher perch. Another small portion was given her.

About 7 P.M. she was struggling on the floor of the cage. I held her loosely in my hands and she ceased struggling and lay quiet with eyes closed. Occasionally she would bend her head far back with bill raised beyond the vertical. I placed her on a soft cloth on the floor of ^{the} a cage and left, as I did not care to see her death-struggle. In a half hour or so I looked in and she was dead.

Dr. Reynolds performed an autopsy later in the evening. Subject to his confirmation: all internal organs appeared to be sound,

except that the main gut showed some signs of inflammation and was extremely fragile, appearing to be in the process of disintegration

Parasitic worm. It contained a parasitic worm an inch or more in length. Thrashers
No crop. evidently have no crop, as there was none in this bird.
B in usual roost. At 10:35 P.M., Brownie, who has been making himself scarce, was

found in his accustomed perch.

May 26th.

No early morning song heard; rain falling at about 7:30 A.M.

B and N here. As I was looking for the thrashers about 9:30 A.M., B came out of the hedge west of the house, ate worms, then gather a few in his bill and ran off looking for his mate, giving the blue-bird call. She was in the lower branches of a pine and he presumably gave them to her. Both ran off toward the nest along the road. I followed by another route and found one of them messing around in it, then retired.

B winning? It looks as if Brownie's cohesive force is winning out and that he is determined to keep this place headquarters indefinitely.

N in nest. About 10:30 B went up to the nest and Nova (I suppose) came out and flew off.

R.R. again. At 10:50 the road-runner was on the oval lawn.
a few times

Brownie was seen and fed ~~anxxxxxxx~~ during the rest of the day and at 7:30 P.M., after a long absence, I went out to see if he would return to his regular roost. Sure enough, within a few minutes he came from nowhere, took one worm, and climbed up to his roost.

May 27th.

No early morning singing heard.

Lutescent warbler and Slender-billed Nuthatch here about 9 A.M.

At 9:30. neither thrasher having been seen or heard, I went to the west side of the house and heard a thrasher singing not far away down in the canyon. I called, not really expecting B to come, since he has no young birds to feed and has to keep an eye on Nova, wherever she may be; but he did, ate all he wanted, then when offered the freedom of the box, gathered a supply and went off down the canyon making

his approach call.

Nova certainly is not a very compliant creature. If Brownie has such a hard time bending her to his will, it is no wonder that she should ignore me completely. I imagine her to be a rather old bird somewhat "set" in her ways.

7:45 P.M. I did not see either bird go to the nest at all today. In fact did not see B again until 7:05, and Nova not at all. B was at the oval lawn prospecting. When I went out, he darted into the shrubbery; but when I sat down in a chair, he came readily enough across the open and jumped up for worms. In accordance with his newly acquired habit, he gathered up three and carried them off- this time toward the glade--presumably for his mate, though I could not locate him again until I heard him singing from the top of the old oak later (7:20 P.M.). He then dropped down into the glade and seemed, from the sound, to be searching. In about 5 minutes he came out into the fork of the road near me, plainly looking for something, as he stood erect and turned his head in all directions calling softly, using the Russet-backed Thrush theme mostly. He then essayed short excursions in various directions, 10 to 50 feet in length, as if to locate his mate. On one of these he examined a tree, appeared to be satisfied, then made directly for his own roost. I could hear him going through the glass house and see the branches moving behind the screen, and to make sure, went to the dormitory tree and found him disposed for the night.

I think that there is little doubt but that Nova comes back here also to roost at night and that B's actions indicate that he wishes to reassure himself of that fact; but that he is not always certain just which tree she is in. The fact that she calls so soon and how indicates that she is not far away, as does also the limited size of the area which his search covers. As long as they both roost here there is then no other nest of this pair containing eggs, otherwise,

one of them would be occupying it. So that their long absences during the day do not necessarily mean that the nest that B built is abandoned. Possibly, if Nova is an old bird, she needs time to work up another batch of eggs.

I have been depending upon Brownie, around whom all thrasher activities at this place have heretofore revolved, to be the principal factor in the anticipated taming of Nova--a sort of catalyst--just as he was with Greenie and all the youngsters; but the contumacious Nova is too hard-boiled, it seems, to be affected by his example.

May 28th.

Monday begins auspiciously, though overcast:

Early song.

Brownie favored us with early morning song.

B in nest.

At 9:00 A.M. he was sitting quietly in the nest, and at the same

R.R. sizes me up. At the same time, the roadrunner approached along the driveway, took a good look

at me, then retired without haste into the bushes.

At 9:15, 4:35 and 5:00 there was still a thrasher in the nest. I think one of the times it was Nova, but can not be sure. At last observation time there was no sign of the bird's leaving. This is the longest observed sitting period in this particular nest to date.

At 12:20, after my being absent since last observation, Brownie was sitting in the nest as if he never intended to leave.

It begins to look like business.

At 1:25, as I passed the nest stalking a ground squirrel, a thrasher was seen sitting in it quietly. As I passed around to the other side, Rhody (the road-runner) slipped out into the open, paused to have a good look at me then, then disappeared. Almost simultaneously Brownie climbed to the nest with a Jerusalem cricket--certainly he is attentive to this wife of his. I waited a few moments, then approached the nest to find Brownie dozing in it comfortably, his mate having slipped out unseen by me. I suppose this bird to be Nova, but am not certain.

One wonders, also, if the Road-runner's interest in this locality has any connection with thrasher eggs.

At 2:05 the bird on the nest was unmistakably Nova with her great, soft eyes and large bill.

At 3:20 it was Brownie^{on the nest, and} who a little later came running to me at the oval lawn from 100 feet away with wabbling tail, seemingly about to topple him over sidewise. (Two minutes before, the road-runner had preceded me along the same road, pausing to take backward looks at me. Inviting me to feed him?) Brownie came for worms, then dug about 6 cut-worms out of the lawn, then back to me for more worms, then off down the road toward the nest with a billful for his mate. He was never so attentive to Greenie. Thus far today the nest has not been seen unoccupied. The situation begins to look favorable.

7P.M. There has been a bird in the nest all day

At 7:15 I went out to note what disposition the thrashers were going to make for the night; reasoning that, if B did not go to his regular roost, then, as I suspected to be the case based on today's behavior, there should be one egg in the nest, since B, as noted in connection with nest 5, takes the night shift on the nest.

B was in the glade and Nova was in the nest. I stationed myself^t about midway. B came for worms, then went down into the glade and disappeared. Soon he began to sing the Russet-backed Thrush song. I told Julio, who was watching, that he was calling for his mate to come to him and take her night roost so that he could take over the night shift. He continued the thrush song at intervals and was answered softly from the nest. B followed his next thrush call with a more imperative: rūr-rūr-ratchée, rūr-rūr-ratchée, and Nova sailed down to him across the road by my head. As they were talking it over, I hastened to the nest and had just had time to feel one egg when B popped into it. So, after all, the speculation as to what might be taking place down in the canyon these last few days, Brownie's

personality has prevailed and we are off to a new start.

May 29th.

No early morning song heard, and none up to about noon, although I was absent for a couple of hours. Does this mean no egg laid?

On my return the road-runner was near the Magpie cage, soon gliding into the bushes. I tried to find him with a view to tossing him some meat to test his tameness (or wildness) and preferences for food, but could not; so went into the glade and sat down, forgetting all about him. About 11:30 there was a startling sort of hoot combined with a rattling sound from a point directly behind me. On turning my head the road-runner was seen to be the author, sitting in a branch of the tree about 8 feet from my head. He moved about looking at me, not apparently disturbed, approaching to within about 6 feet at the closest and continuing to utter his combined hoot-and-rattle at short intervals. It was easy to see that the rattle is, as surmised by Hoffmann, made by striking the upper and lower mandibles together rapidly, but I had not previously heard that it was combined with a vocal sound, as it is, in this individual at least. The hoo, or hroo (it is impossible to describe accurately) seems to start first by a small fraction of a second, then the rattle begins while the hoo continues, and finally the rattle alone is heard.

During this time he raised and lowered his crest and tail rhythmically. I remembered that I had meat with me, and tossed some on the ground. He watched it fall and seemed about to go after it, but went away instead, only to return in a minute or two, sneak up ~~on~~ to the meat (about 10 feet from me) grab a piece and run off. I waited a few minutes for him to return, then left. About 5 minutes later he was again in the glade, sunning himself on the ladder leading to Thrasher nest No. 6, with crest not in evidence.

May 30th.

Considerable early morning song.

At 8:30 A.M. Brownie, after sitting on my knee eating worms, made off to the south east, running and flying towards Reynolds territory. A half hour afterwards I went over there and saw him (I think) in the lot next door amongst the wild growth. He would not come to me.

The thrashers are incubating regularly (beginning with the first egg as usual). There are at least two eggs; possibly three.

The Road-runner has turned his attention to them, and at about 4 P.M. was observed following Brownie to the nest. As he seemed determined to press the matter to its logical conclusion, I chased him away; but in two minutes he was back again staring up into the tree. I chased him off again, but he dodged around a bank and again headed toward the nest and was within 6 feet of it. Twice again during the afternoon, these tactics were repeated. I suspect him now of having robbed thrasher nest 7 more strongly than ever. Strangely, Brownie does not seem to mind him, but the two kinds of towhees and the wren-tits have no illusions about him.

The cat-trap, which is always set near the latest thrasher nest, baited with meat, now that he knows the way to it, may prove his undoing.

May 31st.

Thrasher song was heard near my window at 4:35 A.M.; the earliest yet.

9 A.M. Well! Rhody, the road-runner is in the magpie cage, reflecting over his sins, but not much frightened, since he takes meat tossed to him. He made the tactical error of inspecting the inside of the cat-trap, just below the nest. (Bureau of Education and Research of the Fish and Game Commission were promptly advised by telephone).

June 1st.

No early morning song heard, but thrashers singing during the

forenoon near Reynold's. Little Brownie, in the aviary, though manifestly much disturbed after the disappearance of his mate for a few days and very restless, now seems to have found himself. Dr. R reports him as having sung for about 15 minutes a low, warbling song.

Nova will not come into the nest when I am standing at it, but stay a few feet away when it is her turn to occupy it. B is the same as usual.

2 P.M. A good close view of the road-runner discloses the fact that somebody has caught him and clipped his wings. I thought he looked a little unfinished and also wondered why he had not been seen going up into high places recently.

At about 7:30 P.M. the change of shift at the thrasher nest appeared to be the reverse of the usual one at that time, in that Nova seemed to be taking the night shift.

10:30 P.M. I went out and found a thrasher in Brownie's roost--doubtless B himself. If so it is the first time I have known of his not taking the night shift.

At the same time it was noted that the road-runner has usurped the night roost of the magpies in the bushes in the cage, forcing them to take an ordinary perch. I saw that he was going to try to do it at bed time and wondered whether they would permit it, as they have shown some disposition to tease him during the day.

While making these observations, a Purple Finch sang loudly, full song. I did not know that they ever sang at night.

June 2nd.

An uneventful day in the thrasher world. Everything proceeding in orderly fashion. A quiet incubating period; although there has been an occasional call from the nest.

3 eggs. It has been definitely ascertained that the nest contains three eggs, so Rhody did not succeed in carrying out his nefarious project.

June 3rd.

No early morning song heard. No sub-singing for a long time. Occasional musical calls by Brownie. Incubation proceeding regularly. Brownie in one of his very friendly cycles.

June 4th.

The above note might be repeated, with the addition that there has been an almost continuous rain for several hours. (Now 2:30 P.M.) Such a rain, though not unprecedented, is not ordinarily to be expected at this time of year.

7 P.M. It rained all day.

June 5th.

No early morning song; rain during the night.

1:25 P.M. At 9:30 this morning I was at Dr. Reynolds' and heard a thrasher scripping just the other side of his brick wall on the south property line. I went there and called; the bird ran and flew toward us and made several ineffectual flights from the ground to reach my hand, but stopped part way. I went outside the wall and Brownie came to me just as if he were at home, tame and friendly. This point is 100 to 150 (?) yards from here and hidden by trees and bushes from this place. It is the first time that Brownie has come to me so far away, when I have been out of the environment in which he has been accustomed to see me.

After this he climbed to a high point nearby and sang loudly and, it seemed, challengingly, as another thrasher was also singing at an indeterminate distance to the north, possibly not over 100 yards away. The question naturally suggests itself: Is this region a sort of No Man's Land between the territories of two thrashers. B then disappeared in the bushes, and a half hour later when I returned home, he had resumed the job of incubation.

The "other" thrasher may have been Little Brownie in the aviary; but this was not determined.

June 6th to 10th. inclusive.

During this period observations were continued as usual, but notes were not made, since nothing of special happened. Incubation proceeded regularly, there was practically no early morning song, with but a few calls and snatches of low song at times. The bird off duty usually went to a considerable distance from the nest, though Brownie remained as tame as ever when present. There was no under-song at all, and Nova appeared only to scold and make an occasional alarm call.

June 6th.

At 12:15 P.M. I followed Brownie, who had just been singing a little from the old oak, to the nest. Nova did not get out at first but was talking with Brownie, as if talking. She seemed not to mind my presence at all. When she finally left without haste, I felt in the nest under Brownie, who was very patient and gentle, and though I could feel that the shell of one of the eggs was crumbling. If this ^{is} correct, it will be noted that the eggs of wild birds do not, as has been stated, always hatch in the forenoons--though this particular margin seems to be close.

At 1:05 Brownie came from the nest. I went there and had time to feel definitely that the egg, now at the opposite or western circumference of the nest, was no longer intact. In fact B's leaving without being relieved was circumstantial evidence that it had hatched or was hatching. Nova came quickly, but without being much disturbed, to take over, so I backed off to 4 feet to give her a chance. She inspected the interior, then settled herself in it comfortably. I retreated to 10 feet and sat down where I could see her back and head. She sat with her head toward the side of the nest where lay the hatching egg, and every few minutes, would rise in the nest reach down into it and tap gently and swallow (occasionally) small particles with the typical back and forth movements of the head that birds often make when swallowing. This action was all directed at that portion of the nest

directly beneath her head, to the west.

At precisely 1:32 she lifted a large object slowly and carefully high above the nest. It looked like nearly the whole egg, and I wondered whether she intended to swallow her offspring shell and all, as she held the object in good swallowing position and it looked to me as if the youngster, or at least a part of him, was still attached to it; but of this I could not be sure. However, she carried it off to the glaze and I had just time enough before her return to feel that the new arrival was still safe in the nest.

I marked the spot to which the shell ^{had been} ~~wax~~ carried; but careful search revealed nothing.

Several times during the afternoon I visited the nest to see if any feeding was going on; but saw none, even when the bird that had been off foraging returned and relieved its mate at the nest. On two occasions, when it was Brownie that was returning, he got worms from me, but ate them himself.

June 12th.

Scattered early morning song.

About 9:30 I sat near the nest for a half hour, Nova being the occupant. At the end of that period of time Brownie walked quietly by me, within reach, wanted no worms, climbed up to the nest and relieved his mate without offering to feed the young bird. I handed him a worm, which he would not take until I laid it on the rim; then he ate it himself.

6 P.M. About 5 I felt in the nest. There seemed to be two eggs and no chick. There should be two chicks and one egg. Possibly Nova did carry off the chick after all. No food was seen being carried to the nest all day. About 5:30 Brownie, in the nest, frequently rose, probed and tapped. He was rather hostile when I stood looking down at him, and wanted no worms; neither did he particularly appreciate my scratching his chin for him. Yet, a few minutes

later, in the glade, he was throwing bran all over my lap from the worm-box there.

June 13th.

One chick and one egg. At about 10 A.M. the nest contained one egg and one chick. It is not known when the egg hatched.

June 14th.

Two chicks. At 10:40 A.M., as Brownie took charge at the nest without having taken any food to it, a peep into it revealed two little thrashers.

B responds to gun shot. At about 1:25 P.M. I shot a lizard with a BB gun about 80 yards from the thrasher nest, intending to give it to the road-runner.

Brownie evidently heard the shot, for he came running along the road **takes first meal worm to nest.** full speed, took a couple of worms for himself, then prepared one very carefully on the ground and ran and flew toward the nest. The cycle is once more under way and it will be noted that this is the first meal worm for this brood, and only one was taken--very thoroughly broken up.

Road-runner takes lizard from hand. When I showed the lizard to Rhody he became interested at once and made swallowing movements. I went inside the aviary and held it out to him. He wanted very much to come and get it, in fact did come, but was afraid to make the last snatch as long as it was in my hand; but when I laid it down he took it eagerly and waited for more. I got

The lizard. another one and this one he took from my hand courageously. (This lizard was dark in color--almost black. Besides the two wide blue bands paralleling the white belly, there were two almost black ones and the under side of the legs was a decided yellow).

MOULTING Since some time in May the magpies have shed occasional flight

Magpies. feathers and their necks are beginning now to get a little "bald". Also they are working on their feathers more, are not so sleek, do not bathe so often and show new flight feathers sprouting.

Brownie, Yesterday Brownie scratched himself very thoroughly everywhere as if he itched all over. It looks like the beginning of the moult with him. A new gesture, first with one foot and then with the other, was much like that of a cat washing its face. I have not seen it before with any bird. He rubbed not only the sides of his head, but his

"face" as well, at the the same time moving his head about with a nutating movement as a cat does.

3, The road-
runner.

The clipped wings of the road-runner are making an astonishing recovery, as to flight feathers, but not as to coverts. In the last week I should say that the former have emerged about 2 inches beyond the clipped coverts. This looks as if these feathers had either been pulled out, or else that the moult started with him a month or more ago--before his wings were clipped.

Fairy chorus
begins.

Even at this tender age the young thrashers have begun the fairy chorus.

They require but little food as yet, so the parents are not pressed to supply it. The meal worms are not yet entirely favored, Brownie often passing by me to get food of his own selection for the young. His choice runs to spiders and soft-bodied creatures of small size, as far as can be determined from a few observations.

Nova is doing her part and, as yet, there is always one adult on the nest.

June 15th.

9:30 A.M. Brownie got a meal worm for each of the chicks, then foraged for wild food for additional supplies.

There is always an adult at the nest.

June 16th and 17th.

Frequent observations were made during these two days, but nothing especial noted. Brownie occasionally takes two worms at a time to the nest, showing increasing demand for food.

There is no singing of any kind, the only sounds made by the adults being the "blue-bird" peeps of B when leaving the nest for food (and to attract my attention) or when carrying food to the nest, and Nova's occasional scrips when bringing food.

June 18th.

Conditions practically unchanged, except that Brownie now demands

meal-worms at a time, and oftener. As a consequence he is not ranging so far and is doing more than his share of the feeding. He now wants four worms at a time and gives all four to one chick at a feeding.

When Nova brings food, B usually heads directly for me when I am in the vicinity and gets worms for the brood. As a result, since Nova will not pay the slightest attention to me, and they are still continuing the policy of keeping the youngsters covered, Brownie is not only doing most of the feeding, but by far the most of the nest-sitting. About 4 P.M. he changed his tactics as if he were aware that he was getting the short end of it, and, on one of Nova's returns he came and stood in front of me where I was sitting, and for about 5 minutes remained perfectly motionless, gave for his head, about a yard from me. He would not take worms for several minutes. Then at last he succeeded in taking a worm. He held it in his bill for a long time in his bill. After a few minutes he repeated another, and for about 20 minutes held these two worms in the tip of his bill. He did nothing but stand alongside me in a little patch of shade. At the end of this period he suddenly became all activity and headed for the nest sounding his approach call, Nova leaving as he arrived.

A short time afterwards he stood gazing at the magpies and the road-runner in their aviary with evident curiosity, for all the world like a small boy in front of a monkey cage.

June 19th.

The demand for food is increasing and Brownie is relying upon me more and more, taking larger loads to the nest, and keeping in closer touch with me. Often I am first aware of his presence by hearing his approach call nearing. Twice today, while I was in the magpie cage, he climbed up on top of it, waiting patiently each time until I came out. I have never seen him there before.

I found Nova's nest still empty this morning, but on the 19th it was full.

Black mouth. The inside of his mouth is "black."
Eyelashes He has distinct eyelashes.
and eyes. The pupil is encircled by a narrow brassy ring. Outside of that the iris is dark again.

June 20th.

10: A.M. The young thrashers now have their eyes open.

The parents are now beginning to leave the young birds uncovered and unattended for longer periods, and the demand for worms is increasing.

Brownie is keeping in still closer touch with me. On one occasion this morning when I left while he was still hanging about me, and went to another part of the garden, where he could not see me, he called:

W-a-i-t, w-a-i-t, we-oo-hickey? We-oo-hickey?

And when I answered he came rustling through the branches of the trees in a great hurry and got more worms for the brood. This was about 100 feet from the nest, with many trees intervening.

June 21st. to 23rd., inclusive.

The thrashers were frequently observed during this period, but no notes were made. It was a time of almost complete silence on the part of the parents. Brownie has done most of the feeding, with wild food and some meal-worms contributed by me. He finds a surprising amount of time to sit on the nest, bathe and preen. After bathing he likes to come and stand near me, dry himself and arrange his feathers. He sometimes takes a good half hour at this, and though often within reach, during all this time shows no interest in food until his toilet is complete. On the 23rd. it was noted that very thorough manicuring (or pedicuring) forms an essential part of the operation. Incidentally there is still a gap in his left wing where the mutilated feather was reported in these notes on October 11th., last year. I have kept watch of this particular wing ever since. While the feather has disappeared, it has never been replaced.

I have been sitting by the magpie cage in order to note the reaction of its inmates toward Brownie and vice versa, and more especially to see if I could detect any influence that Brownie's tameness might have

on the road-runners attitude towards me. When Brownie comes for worms the magpies usually come as close to me as the wire will permit and watch operations keenly, their interest being, I think, undoubtedly in the worms. Often when I turn my head to look I find that the road-runner is standing just behind them, also much interested. (Usually he keeps away from the magpies). But it is Brownie that he watches, craning his neck to get a better view and following him with his eyes as he moves about, watching him disappear into the bushes on his way to the nest and also his return.

(On the afternoon of the 23rd. Dr. and Mrs. Grinnell, Miss Blanchard and Mr. and Miss Sumner came to see the birds. Brownie, though a little timid, behaved very well).

June 24th.

The road-runner is very much interested in Brownie; he is not excited about it, but seems to forget everything else when B is near, getting as close as he can and watching with a bright expression, not at all hostile, standing within 2 or 3 feet of me, appearing to ignore me entirely, though I think he recognises me clearly as the Lizard Man. On one of these occasions this morning I went into the cage with two live lizards. Rhody immediately went to the shelf in the corner (where I usually give them to him) before I got there. (Usually it is I that arrive first--the approaching being done by him--the waiting by me). This time he permitted me to walk up to him, and when I held a lizard out to him, he took it at once, swallowed it whole and waited quietly looking at me, without retreating. The next one he took in the same way; so Brownie's example may be having some effect. Incidentally, on one occasion this morning when Brownie was getting worms from me, I showed him a lizard intended for the road-runner and he tried to get it away from me.

At about 1:30 P.M. Brownie was hovering the young birds in the nest and did not leave it for more than two hours, though the young-

sters were plainly warm enough, as evidenced by their open mouths showing at the edge of the nest. Most of the time they appeared to sleep. At such times as I visited the nest, Brownie would not take food for them, nor did they ask for it. Several times during this period Nova came to the nest tree, without food, scripping loudly if I was there, but B gave not the slightest heed to her presence, not even turning his head in her direction. He was also indifferent to me. At 3:50 she called from the old oak loudly (one of her rare syllabifications):

Quit, quit, cricket, cricket.

To this Brownie immediately replied (his first notice of her):

Tor-peeto, tor-peeto,

and left the nest; but when I went to it to see if there was any evident purpose back of all this roasting of the nestlings (other than the intention of giving them a good long sleep) B came back at once, very gentle and friendly, eating from the soft-food dish offered him and watching interestedly while I gave each chick a small dose of moist soft food with the squirt gun. He then settled down on them again for another long stay, evidently satisfied that it was no longer necessary for him to carry out his original purpose in leaving, whatever it may have been.

At 7:40 P.M. I had an example of what appears, on the face of it, though such may not be the case, to be behavior entirely inconsistent with the foregoing. At that time the evening chill was approaching, yet neither adult was on the nest. Brownie was not in sight and Nova was off at some distance scripping. I called and Brownie flew down from somewhere near the dormitory tree, giving me the impression that he had gone to roost. He was not anxious to get worms, but he finally did in a perfunctory manner and, in the same casual way, took them to the nest when he got good and ready. He repeated this in reluctant

fashion, looking in all directions as he slowly approached the nest, as if he wanted it understood that it was not his business and Nova should be there, and he had had enough of this sort of thing for the day, and this was his last effort--let somebody else look out for the kids. However, he fed them, then headed straight for the dormitory tree and at 7:57 exactly I looked up into it and there he was comfortably stowed away for the night, figuratively having washed his hands of the whole affair, the nestlings all by themselves (as I ascertained) and Nova nowhere to be seen. However, at 8:05 she came from nowhere, silently, and slipped into the nest, so perhaps Brownie had it all properly prearranged after all, and it was my appearing on the scene that kept Nova away from the nest, interfering with the programme. This seems more consistent with Brownie's character as an indefatigable parent. I was not aware that Brownie was taking the nights off now, if indeed he is doing so as a regular thing. Possibly the plan is that he should carry most of the burden during the day (as he does) and have the nights off. In that case, in coming down from the tree and taking over the task of feeding at that late hour, he would be doing more than his part. In any case, it is impossible not to admire his character immensely.

June 25th.

Based on observations of previous broods, the young thrashers may ^{be} ~~be~~ reasonably expected to leave the nest somewhere about the 28th. to the 30th. of this month. (I expect to leave here the 28th., to be gone for several days' absence in the "Condor country". This makes it awkward).

At 7:40 P.M. neither adult was at the nest, but Brownie soon came as I stood there with visitors and took charge, undisturbed and friendly. We did not wait to see whether he would leave it and go to his roost. Nova was not far away.

9:45 P.M. He could not be found at his night roost, so he may be

taking the night shift.

The road-runner was sleeping on the shelf, especially for him, with his tail cocked up against the wall; an attitude taken, I think, to keep the magpies from sneaking up behind him and pulling it.

The magpies were side by side up in the "pent-house", also provided for their special benefit.

June 26th.

Almost invariably when I visit the nest, no matter how warm it is, the young birds are being hovered by Brownie--occasionally Nova. I get the impression that this differs from precedent, but cannot tell without checking back. It also seems that there is very little feeding going on. In fact, such is the case during the 5 or 6 hours in the middle of the day. During this period the young do not seem hungry.

June 27th.

Movie of nest, Scene 1. At 11:20 A.M., Brownie on the nest, I took a moving picture of him, i.e. it would have been a motion picture if he had moved. He did not like the camera 2 feet from his nose and froze. (Dis. 2'0"; Stop f, 2.8 (deep shade); Speed 16 frames; Panchromatic film. There were high lights of direct sun, but mostly dense shade). Footage 4½; 71.91.

Scene 2. At 11:50 A.M., B on nest, conditions the same, except young had just been fed by me, and larger stop used. (Dis. 2', stop f, 3.5, footage 7). 71.91.

Scene 3. At 1:15 P.M. Nova was on the nest, but departed as I went up to it, scolding, first: like a Brewer's Blackbird, then very much like a Bullock Oriole--a sound which I have never heard from any thrasher before. Brownie was seen approaching about 25 feet away, carrying two very large spiders, or else Jerusalem crickets and I hoped to get a picture as he entered the nest and fed the young. However, although he came promptly, he had disposed of his cargo somehow, the young did not show great eagerness and B himself was wooden on account of the camera staring him in the face. (Dis. 2', stop f, 3.5, footage 6). He would not "loosen up" as long as I was there.

The young. These two youngsters are not very friendly--an inheritance, perhaps,

from the distaff side of the family. They are inclined to crouch down in the nest and scold me, even when Brownie is hovering them and frequently refuse to take food from the feeder, though I do not offer it often.

In this connection, it occurs to me that the tapering off in the food supply may be done deliberately, analagous to weaning in mammals, (that is; if the supply is actually being decreased;) the object being to prepare the young to leave the nest and take care of themselves. No action on the part of the parents has as yet been witnessed that could with certainty be interpreted as an inducement to the nestlings to leave, in connection with any brood.

At 7:40 P.M. neither adult was at the nest, but Nova could be heard in the direction of the glade.

About 7:45 Brownie appeared, came to me where I sat, ate a few worms, then took the huge quantity of two to the nest. He did not return, so in a few minutes I went to the nest and found the young still unattended and nobody came, though I stood there a minute or so. On going to the dormitory tree at 8:50⁷, Brownie was discovered sitting quietly in his old place, evidently finished with household cares for the day. It is curious, and on the face of it, it looks inconsistent, that he should keep such close watch over them during the day, only to abandon them (apparently) during the night, when it would seem that they are most in need of protection, especially against falling temperature. (Temp., 8:10 P.M.:62).

Possibly this is part of the preliminaries incident to "weaning". Or perhaps he relies upon Nova to do the needful.

I shall go out shortly and see if she has taken over the job, at the risk of disturbing, as she is so flighty.

8:25. Although I knew exactly where to look for Brownie, he was very hard to find, as he looks exactly like the dead leaves that accumulate in these trees. However, I saw his head and breast at last,

a much more difficult accomplishment than one would suppose, and took the rest of him for granted.

Nova was on the nest and began to rustle the instant I turned the light on her, so I beat a hasty retreat.

Evidently, therefore, Brownie knows what he is doing and his confidence in his partner is not misplaced.

Pat (to restore ^{to} Little Brownie his original name, to which he has now sole title) now 2½ months old, is a fine, strapping youngster, looking fully adult, though with Greenie's eye color. He is full of pep and friendly. Dr. Reynolds reports that he had a visitor yesterday; another thrasher outside the aviary and they were much interested in each other.

June 28th.

9 A.M. I have tried repeatedly to get a picture of the young birds in the nest, but Brownie comes and gets on it before I can get everything adjusted. If he is not there as I approach, Nova sees me from some point of vantage nearby and notifies Brownie. He is friendly enough about it, but persistent.

9:10 A.M. This time I beat the Nova-Brownie combination by about 10 seconds and got a chance at the youngsters. (Dis. 28, stop f, 2.8, deep shade, footage 4½ feet).

June 28th. to July 4th. at 11 A.M.

During this period I was absent on the Condor trip.

Julio informed me that the young thrashers left the nest on the morning of the 29th. and that each adult was attending to but one bird. I had an engagement for the day, but looked up B, finding that "his" youngster was in the dormitory tree. I heard Nova, but had no time to look her up and locate the other young bird.

July 5th.

Brownie is feeding only one of the young and Nova the other, the latter being discovered soon after looking for him. Both are very

... (i.e. the young birds).

Notwithstanding my absence of several days and the early stage of Rhody's taming process, he accepted a lizard from my hand without hesitation. I shall try him on an English sparrow.

During the day Brownie made frequent applications to me for food, giving it all to his special charge.

July 5th.

9:40 A.M. Dr. Reynolds brought a sparrow for the roadrunner, but could not wait to see the test. I entered the cage and the roadrunner came to me at once, took the sparrow in his bill and was immediately pursued by the magpies. I reentered the cage to keep them off, and he proceeded to juggle the sparrow about to get him pointed head first down his gullet. No attempt whatever was made to pick him to pieces, or in any way prepare him for eating. He got the sparrow finally by the head, having been holding him crosswise, and by a series of force and soft jerky movements of his own head, caused the bird to slide down gradually. When the sparrow's largest cross-section arrived at the hinge of his bill, Rhody had to rest a little, then by one magnificent effort, got him by the critical point and, for a few moments, the sparrow's legs stuck out of the corners of his bill like the barbs of a cat-fish; soon to disappear, however. A huge Adam's apple appeared on Rhody's throat surmounted by a ruff of standing feathers. This slid down and subsided. The whole swallowing operation lasted about one minute and the sparrow was disposed of in its entirety without even one feather being lost. I wonder if he will disgorge pellets.

10:40 A.M. Brownie is showing signs of under-song's returning. Just now, when sitting on my knee waiting for me to "loosen up" with worms for him to take to his special charge, he repeated the thrush song very softly and sweetly. His youngster is sitting at

No. 6 (No. 1 of 1974) in the glade. He is less active than "A" bird. The latter came into the glade, unlocated, while I was

containing B and climbed the tree about 100, leaving him away from Nova, who was hovering about 50 feet away in the bushes. The bird flew back to Brownie, after filling up his bird, made no further pretense to gather food, but sat where he could keep an eye on me, preening meanwhile, as there was evidently no need in his charting himself when food could be obtained without effort. He paid no attention to Nova's bird, even though it called for food softly.

It seems probable that B's change has been incentive to activity because of Brownie's ability to keep him well supplied with food at short intervals, through me, and that, as Nova will not come to me, her charge is often hungry and more inclined to wander to keep in contact with his mother, who has to range widely.

Dr. Reynolds reported this morning that ^{several} thrashers were visiting Pat (Little B) in his aviary frequently, running back and forth on top, and that he thought one of them was Brownie, as it remained near at hand in his presence. I went over there about 8:40 A.M. A thrasher was hovering about 100 feet from the aviary and another was digging about 50 feet away. This one looked like Brownie, but was not, because I finally got a look at him at about 15 feet and all of the feathers in his left wing were intact and B was over home. (Verified before and after). I think this bird would be easy to tame, as he was not especially shy, working over toward me while I talked to him and displayed worms.

While on the Condor trip, a thrasher was frequently heard scripping in the chaparral about 100 yards from our camp. The last day I went over and sat by a small Maul oak (*Quercus chrysolepis*) on the edge of the brush. After a time the bird could be heard scripping possibly 100 feet away. I talked and called, and he finally approached to within 6 feet of me, inspecting me carefully and scripping softly,

eventually without fear, and then departed quietly and slowly. He assembled the local thrashers in every detail, although about 225

miles away, as the crow flies, to the south east and 4200 feet higher in an arid, uninhabited region. From my limited experience, as to number of individuals observed, it would seem that the California Thrasher, despite his reputation, is not an extremely wild bird, wherever found. Some of the thrashers at Dr. Reynolds's place, of course, may be off spring of Brownie and Greenie tamed here last year. In any case it seems that the experiment of locating Pat over there is ~~worth a try~~.

The thrashers in the Condor territory were not in song, the only ~~song I heard~~.

At 1:15 P.M. I went to the glade, but could see no signs of the young birds. However Brownie spotted me at once, got worms, then looked up into the old oak to locate his youngster, but could not see him. For a few moments he was at a loss, but finally ascended the tree, went to the nest, a head popped up, and there was his offspring in nest No. 6 where he had no business to be at all. 10 minutes later I stole up quietly to have a look and found him lying in it snugly as if he belonged there. Clearly he is, at least temporarily, bored with the affairs of the outer world after his long experience in it.

July 7th.

9:30 A.M. Brownie's attitude towards Nova's youngster is singular. Plainly he does not want to be concerned with him. Just now B was getting worms from me for his special charge, call him Bb (Brownie's bird) when Nova's bird, Nb, flew from somewhere and landed at my feet. Brownie scolded him a little and he ran away. B, reluctantly, after repeated urging by me, which may possibly have some effect, did at last, take this fellow on, billful of worms, but when the youngster followed him for more, B was plainly annoyed and pecked him. The worms were all gone, so I offered B soft food, a mere speck of which he took to Nb grudgingly. The next he took to Bb across the driveway near the berry patch. B was "all fussed up" about the matter with

feathers ruffled showing his preen gland, and looking decidedly sour. Nb was wandering about disconsolately with no signs of Nova about. Viewed from the human standpoint, one would say that B considers Nb should be fed by Nova alone, for the present at least, and that his annoyance is vented upon the youngster and persists even when that innocent is not present.

During the afternoon B indulged in repeated "sun-fits" and preening episodes in my company; some of them lasting from half to three quarters of an hour. After sunning it became necessary to cool off each time, since he does not seem to tolerate direct sun for more than 3 or 4 minutes at a time when the sun is strong. Often he cooled off on my knee, with spread wings and wide open beak. I could look right down his throat. His tongue is narrow and slender and of horn color for a considerable portion of its length and only about half as long as his bill. "The" fly is still with him (or another one like him) and it or something else occasionally gives him a sharp prod that sends him up into the air for a foot or two in a panic.

B's upper tail coverts are nearly gone, the back of his neck is thinning out and a large portion of his leisure time is spent in scratching himself vigorously and working on his feathers with his bill.

At about 7:15 P.M. both young birds were sitting near their nest. B came when he saw me there and one of the youngsters came down to get food supplied by me via B. B then worked over slowly toward the dormitory tree about 30 feet away. One youngster preceded him and one followed, all keeping up in the branches of the adjoining trees for the most part. The leading youngster remained in the pine midway, the other followed B foot by foot into the dorm. At this point Nova called musically from the glade (a rare performance for her) the bird in the pine went to her, and she presumably saw him safely disposed in the old oak, and I think, went elsewhere, because Brownie went to another tree, appeared to visit somebody there, then returned to the dorm where the

July 8th.

About 9 A.M. word was received from Dr. Reynolds that four thrashers in addition to Pat were at his place. After seeing that Brownie was on the job here, I went over and there were still three in sight and hearing. One of these came to about 20 feet from the dividing wire fence to the north and I went slowly toward him talking. He gradually approached the fence. I went to a point about 8 feet from it and tossed him a meal worm, which he, ^{ran} toward me, and took fearlessly. I tossed him others and he made "frantic" efforts to get through the wire at ground level to get on my side, and reached through for those that fell short. He was a fully grown bird, but had the brownish olive eye-color of Greenie and the markings of Brownie. He therefore, was neither Brownie nor Nova (nor Greenie). He may have been one of B&G's offspring that I tamed last year, but, in any case, the incident illustrates further the confiding nature of these birds once again.

3 P.M. Brownie has not been seen to feed Nb since the incident reported, but attends to Bb faithfully. He now considers that soft-food, moistened, is in order. He is having an easy time and, as a consequence, is interesting to watch. He has been repeating his intensive scratching, preening and sunning. Today he spreads out both wings, one on the ground for support, and on this one lays his head with open beak.

A.R. Earlier in the day the road-runner would not take a sparrow in the presence of others. He is frightened when more than one person is near. His flight feathers are fully restored, but his wing coverts still show the cut ends. No pellets have been found as a result of his bolting the sparrow the other day.

Magpies The magpies' new tail feathers are growing fast, but they are getting shabbier otherwise. The smaller one is inclined to pick on Rhody. Once the larger one was seen acting as if to prevent this.

R.A.

5 P.M. I offered the sparrow to the road-runner again when nobody else was present. He took it at once, but dropped it in trying to get it properly arranged for swallowing. I picked it up and offered it to him again. Once more he took it and dropped it. I waited about an hour. Again he dropped it. The head, feet and feathers were removed. He accepted it, only to drop it again. A live lizard was shown him from outside the cage. He came over at once and swallowed it.

Birds accepting
unnatural
food.

One wonders if the other sparrow failed to agree with him. I have noticed with other birds, after their confidence is gained, that they will try almost anything offered them in the way of food when it is offered in the hand, and sometimes will attempt to eat perfectly inedible objects, so offered, that they would not ordinarily consider. This suggests that once they associate an individual with food, everything he offers is assumed to come under that category.

Youngster
"sings".

About 7:45 P.M., the Grinnells, Dr. Benson and I stood watching Nb, sitting in an acacia, in order to see the final disposition of the young for the night, when he broke into a short, rather loud, hoarse "song" two or three times. I remarked at the time that this was the first instance of such a song at this place, but this statement should be qualified, as I have heard a still shorter one before.

This bird flew to the old oak, and shortly after, Brownie escorted the other one to the dorm, but did not himself go to his own roost while we were there, being presumably occupied with Nova.

Regarding
young birds'
return to
nests.

(a) Thrash-
ers.

(b) Robins.

The question was raised as to whether young birds ever return to the nest after leaving it. Examples of such return on the part of the thrashers at this place were cited, and in addition, it was pointed out that, this morning, in the presence of the Sampsons, Dr. Reynolds and myself, one of the two young robins in the nest outside the window by the stairs flew off with loud cries when the window was opened, and that two hours afterwards he was back in it and was still there at 7:30 P.M. (See later).

July 9th.

At 7:30 A.M. this young robin was still in the nest.

At 9:30 he had left.

He differs radically in head marking from the one that is left, looking more like a varied thrush.

10:45 A.M. Earlier in the morning as I was filling the dish in the glade with suet-scratch feed mixture, Brownie came and took some of it, remarking softly:

705
Stick to it.

Thus encouraged, I continued. However it developed that he was merely supplying the key-note for his remarks for the next half hour or so, as this phrase furnished the burden of his ~~xxxxxx~~ talk during that period, to whomsoever addressed--even Bb. During the early morning stuffing period he did not hesitate to give this coarse food to Bb, ignoring Nb completely.

This attitude toward Nb persisted throughout the day, but Nova, though I have not seen her get food from the dish for Nb, is feeding him. Since she has to wander about considerably, Nb is acquiring the same habit and seldom comes to the glade where Brownie and Bb make their

1-11-1911.

R.R. eating
sparrows.

This morning Dr. Reynolds brought 2 sparrows for Rhody, but Rhody was so excited by the presence of two persons (and probably also not hungry) that he would not look at the one offered. He probably ate the one, finally, which I gave him yesterday.

2:20 P.M. Rhody, by coming to the wire and showing that he was probably hungry, so I entered the cage with a row, which he took with little hesitation. This time his procedure was different, as if he had learned that it is ~~the bird whole~~ the bird whole, feathers and all.

He placed the bird at his feet at 1:55 approximately, and began pulling out the wing feathers by taking hold of them and sinking until they came out, or rather the bird fell off. He would take one feather at a time by the tip. The back and breast feathers he stripped off and tossed aside just as a human being would do. He did not hold the bird with his feet, but his hands were so clever, in such a way that he could hold the bird by the wing and tail feathers, and he did not have to move his head. He thrashers do with crickets. He did not have to move his head at all. Not in the cage, he rattled occasionally. At 2:15 the wing and tail feathers were off, the back was almost entirely bare, and breast less, the head and neck not being touched, he began to swallow it by the head. But dropped it. More successful, and, at 2:25, he was eating it.

At no time was any other bird in the cage. I was inside of the cage with the road-runner about 6 or 7 feet away, the cage being 9 feet square in plan.

release of At 3:45 P.M. the Stellar Jay banded by Mr. Cain was released
Jay Prisoner and flew off with chirps of derision.

July 11th. 1934

A.R. refuses The road-runner, though friendly enough and in receptive
skinned mood, did not want the skinned sparrow this morning.
sparrow.

Young thrasher At 9:30 A.M. Brownie seemed somewhat at a loss as to where to
again occupies old nest. take the worms, but soon went directly to old nest No. 6 (No. 1 of
1934, in which Little B and Little G were born) from which a tail was
seen projecting. This proved to be Bb, lying in it comfortably, ready
to be fed like a nestling instead of a bird 12 days from the nest. B
fed him, then made two more trips to him as if everything were normal,
and the youngster remained there with no sign of leaving. It is cool
and shady there.

Pat's new friend Somewhat earlier I looked up Pat at Dr. Reynolds. He and his new
outside, eats outside friend, who is there almost constantly, are much interested in each
chicken other. The latter is very fond of ordinary chicken feed, rather strange
feed. diet for a thrasher, though frequently noted with others at this place.

Night roost. At bed-time Brownie conducted Bb to a tree which I have not seen
used by the thrashers as a night roost before. Now disposed her bird
in still another place, not precisely located.

July 12th.

B looks for Bb. At 9:25 A.M. Brownie came to me for worms in the glade, then began
to climb the various baccharis bushes in search of Bb, calling. I
Bb in nest looked up at nest 6 and saw that the youngster was comfortably install-
again. ed in it with only head and tail showing, exactly like an adult in-
cubating. He paid no attention whatever to B's calls. B continued
his search for about 5 minutes, but did not think of looking in the
B anxious. nest. He began to make plaintive warbling sounds, then gave it up,
consoling himself by eating the worms; then preened, pulling out a few
loose feathers.

In a few minutes he made another effort with worms. This time
I stood below the nest and tried to attract his attention to the

lasy little chunk in the nest, but without success. B seemed even more anxious, but again gave up, ate the worms, sun-fitted and preened, cooled off with open bill and spread wings on a knee for a few moments, then departed. Within a few minutes he was back with some largish object in his bill, going directly to the nest and giving it to the youngster, who accepted it phlegmatically and resumed his "incubation". B then went off about other affairs. It is o'clock, when I left the glade, the young bird was still sitting quietly in the nest, letting the world go by, apparently supremely confident that whatever he needed would be brought to him and that it would not even be necessary for him to exert himself to the extent of calling to reveal his location, as somebody would be sure to find him anyway.

finds Bb.

is still in nest.

body's technique with alligator lizard.

10:50 A.M. I gave Rudy a live Alligator Lizard about 11 inches long. He seized it by the shoulders, crunched it hard, then slammed it three or four times in rapid succession on the hard ground. The lizard was then dead. (I think) He carried it about a few minutes to avoid the maggots, then juggled it about to get it by the head and began the swallowing operation. When all was down but the tail, that appendage persisted in wagging itself inconveniently about his bill; although the lizard was plainly dead--not even making involuntary movements--the tail hinked. Rudy's first attempted solution was to disgorge partially, but at the same stage of re-swallowing, the same thing happened again, ~~causing him to spit it out all over again.~~ The final solution of the dilemma was to pull the coil off with one foot. This accomplished, a few hard swallows and head shakings did the business. Rudy then retired to his shelf, where he lay down to let nature take its course, with tail flattened vertically against the wall and feet toward the ceiling. When these birds get too noisy, an occasional mild b-r-r-r-rp discourages them.

No attempt whatever was made to dismember the lizard or to remove portions of it.

Brownie About 5 P.M. Brownie got worms from me for his charge, but this **members Bb's** nest **complete** time remember to look for him in nest 6 when he could not find him **not there** elsewhere. However, he was not there. While still carrying the worms about aimlessly trying to make up his mind to eat them himself, the **youngsters** harsh squalling of a young thrasher in the clutches of an enemy were **quarrel.** heard outside the glade. B dashed off in that direction, but it proved to **stops it.** be caused by one of the young thrashers getting the other one down and pecking him. B separated them without administering punishment to either and they disappeared in opposite directions, later both coming to the glade from opposite sides. B fed Bb and Nova called Nb softly from some place outside and he left to join her. Bb then went up into nest 6, which seems to be a great attraction, and began throwing oak leaves out of it. (Making it softer to lie in tomorrow?).

no time. 8:20 P.M. Brownie and Bb are sleeping in separate trees, neither of which has been seen so occupied before. Bb found his own roost. B merely came and inspected it after it had already been chosen. Nb about sunset seems to affect the acacias along the north line, where he is inclined to essay a loud call or two. Nova finally comes and leads him off or else he goes off to look her up, usually in response to her call.

Family division. So far there seems to be a line of cleavage in this family. **First instance.** This is the first brood of two here when both parents were in attendance after the young left the nest. The preceding brood was the only other one of two, but Greenie disappeared before it left the nest. I am inclined to the view that Nova's shyness of me has something to do with it. Twice today she has come to the outside of the glade when Nb was there and toled him away. Brownie and Bb are making it their headquarters, following precedent, and Nb is showing an increasing tendency to come there. It will be interesting to note whether a

the two "branches" of the family will continue to drift apart.

July 13th.

All day each adult attended to its own bird, ignoring the other. Brownie was heard in full song about 9:30 A.M., keeping it up for several minutes with frequent pauses.

B and Bb again selected new roosting places for the night.

July 14th.

Brownie and Bb have come to the oval lawn and remain much in that neighborhood. Brownie has begun to sing undersong while pecking about there, waiting to see what I would do about worms.

Bb also tried his hand at a little warbling song.

All four birds seem to remain on the place. I have made no attempt to tame either youngster.

July 15th.

The thrashers still keep to two groups.

July 16th.

Ditto, except that at 7:30 P.M., about time to hunt roosts, Nova's bird saw me giving worms to Brownie, flew down from the old oak and followed B to where he was feeding Bb, about 40 feet away. He then approached Brownie for food, but the latter shadow-boxed with him and would not give him any. I gave B 2 more helpings, both of which he passed on to Bb, although Nb was much nearer and more anxious for food.

July 17th.

The line of cleavage still remains, though all four birds remain on the premises.

July 18th.

At 9:30 A.M. one of the young birds was in the glade alone, so I decided to see what I could do with him without the assistance of Brownie. He was about 15 feet away in the bushes. I tossed a worm which landed near him, and he promptly took it. I tossed a succession of worms nearer to me, each of which he took. The fifth worm I held

at ground level in the palm of my hand. He advanced carefully and took this one without retreating until I disturbed him by fumbling for another one. When I held the worm box at the ground level, he returned and investigated, but not thoroughly. I then handed him a worm. At this point Brownie suddenly appeared and took charge of the ceremonies. I suppose that this bird was Bb, since B showed no hostility toward him and fed him promptly.

R.R. eats
mice.

Dr. Reynolds's man brought some mice for Rhody. Rhody promptly swallowed whole the one offered him. As I am unable to get mice and English sparrows here; the lizards are getting scarce, and, owing to the strike, meat is unobtainable, this relieves the food situation.

B not feelin
well

7:10 P.M. Brownie has been lethargic all day, with a tendency to sit quietly in one place on the ground, with feathers puffed out and eyes partly closed. He has not been eager for worms as usual and at times when he came to me would not take any, but stand quietly by and look unhappy. He is getting very shabby due to the moult, and I wonder if that is what is affecting him.

Bb now comes when Brownie does, but it is impossible for me to feed him when B is near, as B insists on taking every worm and giving it to him himself, though Bb knows all about what they are for and handles them expertly.

July 19th.

3:30 P.M. (Just finished an 8 hour shift standing guard with a shot gun with other citizens, keeping suspicious characters out of Piedmont).

Bb getting
tired

On my return both young thrashers were at the oval lawn. When Brownie came Bb came with him. When B left Bb stayed behind and responded readily to my advances. (Second time). B would feed neither, but ate all of the worms himself.

B "recovers"

Moult

Brownie has recovered his spirits, but is very shabby, feathers falling off of him when he runs. Pin feathers in his tail now breaking from their sheaths.

July 20th.

July 20th,

Julio says that both young thrashers roosted in the same tree last night, Brownie going to the same acacia which he has been using recently--about 30 feet away.

1:30P.M. On return from guard duty, Nova was seen to fly from the glade. When I entered Bb ran out of the bushes toward me, hesitated, then when I displayed worms, ran to me and took them from my hand. This is only the third time I have tried to get into friendly relations with him.

Nb then came out, but would not come to me. Brownie then came, dropping feathers along the way. This time, instead of eating all the worms himself as he did yesterday, he fed Bb but not Nb. With B present it is a hopeless job to try feeding the youngsters with worms.

It looks as if the family were coming together again.

July 21st.

Perhaps it is, but there were no further symptoms of it today. Brownie is now developing a huge appetite ^{to} which he is scrupulously attending ~~to~~ before ministering to the needs of his special charge.

He appears to be making up for the eating-time lost since the last set of eggs hatched. Perhaps also the rapid growth of new feathers requires a greater fuel supply. He is not satisfied with a half dozen meal-worms at a time, and when I hold my hand over the box to keep him from getting them all, he pecks me hard, hooks his bill over my fingers and tries to pull them apart. When he decides that I am not going to let him have any more for the present, he falls back upon the soft food and suet mixtures.

Most of his time is now spent in preening, sunning, dozing and singing a fairy-like quarter song while lying on the ground near me, (I assume in order to detect any preliminary signs on my part of reconsidering the matter of food supply).

Nb he will not feed at all, and Bb is being given occasional

Nb.

Sparring. lessons in self-defense at unexpected intervals.

Bb and Nb
record.

Both young birds are frequently heard "recording" now and their efforts resemble Brownie's quarter song so closely that it is necessary to see the performer in action to be certain of the identification.

Range of
audibility.

About 4:30 P.M. Nb was in the shrubbery at the oval lawn. The tip of his tail could be seen moving rhythmically, but no sound could be heard 25 feet away. It was necessary to move up to within about 12 feet before it could be heard at all.

Bb again goes
to nest 6.

About 5 P.M. Bb, after being repulsed by B, went up to nest No. 6, picked oak leaves out of it, rearranged individual fibres of the soap-root lining, then settled in it comfortably. He was still lying in it when we left. (G.K.D. present).

B's song.

Brownie, later, came over near the magpie cage where I was giving a lizard to the road-runner, lay on the ground and gave a series of repetitions of the russet-backed thrush song threaded into his quarter song.

B's "camel-
sault".

The feathers on his flanks are hanging down in masses, irresistibly reminding me of the shedding camels seen in a tea caravan out of Peking, June(?) 1902.

July 22nd.

Early morning
full song.

Quite a lot of early morning full thrasher song was heard between 5:30 and 8 A.M. from various points near the house--author (B suspected) unknown.

B's training
of Nb in self-
reliance.

About 9, B in the glade, insisted on feeding Bb himself, then rammed a billful of worms down Bb's throat, pulled them out again and knocked Bb down, chasing him away 10 feet. During this action the worms were scattered. B gathered them all up again, ran at Bb swiftly, "wiped" the worms across his face, then ran back to me, looking up at me, still holding the worms. Again he ran at Bb, but this time gave him the worms, then knocked him down, provoking Bb to attack him in turn. There was a spirited skirmish from which Brownie retreated.

Bb counter
attacks.

with his offspring in hot pursuit. Everything then calmed down.

This is running true to form. Nb and Nova were at the oval lawn, the latter out of sight as usual.

~~B recording~~. Later full quarter song of long duration was heard from the glade. As it was audible about 30 feet, I took B to be the author, but he suddenly appeared behind me, coming from the orchard, and investigation revealed Bb to be the singer.

~~the-sparrow~~ It is to be noted that song sparrows are now either recording or ~~singing~~ singing sub-song, according to whether they are immatures or adults-- I do not know which.

~~Moult of Brown~~ Pat (Little Brownie) at Dr. Reynolds's, now 4 months and 5 days ~~old~~ ~~born thrasher~~. old has been moulting for more than a week. He is getting new wing coverts and losing breast feathers.

~~Pat's friend~~ His friend walked into the open part of the aviary some days ago, ~~joining him~~ and since the door was closed on him, has been there ever since, apparently contented. There is no evident sign of moult in his case.

July 23rd.

~~B feeds Bb less~~. Very little seen of Nova and Nb. B is feeding Bb less. He entertained for about a half hour by singing quarter song while lying on the ground about 10 feet from me.

July 24th.

~~B prevents my~~ Brownie seems determined that I shall give worms to no other bird. ~~feeding Bb,~~

About 11:30 A.M., in the glade, Nb was behind me in a tree, Bb 10 feet ~~and to the~~ diagonally to my left, a spotted towhee in a similar position to the ~~B pushed B~~ bright waiting for worms for his new brood. Brownie would chase Bb away ~~over,~~ each time he tried to approach me, jumping in his face and pushing him over on his back with his feet. B did not want worms particularly for himself, but managed to get all of them tossed to the other birds, Nb not participating--merely watching. Finally B drove him out of the tree. I was unable to feed any other bird while he was present. At last he got tired of the game and left.

July 25th.

July 25th.

**Early respon-
sive song.** There was a lot of enthusiastic full song this morning at the west side of the house, first heard about 6 A.M. Two birds were concerned, one the much better singer. The latter I took to be Brownie, but there is no certainty of this. The singing was responsive and the major part resembled B's calling for a new mate when Greenie had disappeared for good. After the loud singing had ceased, about 6:45, it was followed by low singing and talk of two birds for an indefinite period. It sounded much like courting.

Courting! About 12:30 P.M. similar talk was heard near the glade and I caught a glimpse of one thrasher following another about, both birds appearing to be adults. This resembles courting behavior and may presage another nest, though B is far along in the moult.

**Bb getting
grown up.** Bb seems now to be independent in the matter of food, foraging about by himself in adult fashion.

July 26th.

**Singing during
moult.** More early morning song, and this is the moulting season.
**Nova and
Bb shy.** Nova and her bird are seen less as time goes on. Nova is actually more shy than when first seen, or so it seems. The two youngsters
**Young keep
separate.** are practically never seen together, though occasionally both are seen at once; but paying no attention to each other. Brownie feeds his bird seldom and occasionally shadow-boxes with him. I have not seen him land a good blow on him yet.

B's roost. Brownie is still using the acacia tree near the work-shop for his night roost and Bb an oak about 30 feet away. This acacia is about 20 or 30 feet from the dormitory tree.

Sub-singing. Quite a bit of sub-singing during the day on the part of Brownie.

July 27th.

**Early song
missed.** If there was early morning song, it was not heard.

**Bb independ-
ent.** Bb is practically independent of his parents and is frequently in the upper garden.

"seems" Nb is less seen. There seems not to have been as yet any concerted effort to drive the young birds away.

R.N. eats A day old young pheasant which had wandered out from under the hen at Dr. Reynolds's place and died was given to the road-runner. He took it at once and was followed about by the magpies. I went into the cage to keep them away, thus giving Rhody a chance. He pulled the down nearly all off and then swallowed it whole. I had some doubts as to whether he could perform this feat, but it offered no difficulty.

Nova is now principally a "wandering voice", seldom seen.

Both young thrashers roosted for the night in the same tree. This has not been seen before, even with the broods that have kept together in the day-time.

July 28th.

Early song. Early morning song heard at about 6 A.M. , presumably by B.

About 7:30 one of the young thrashers was at the oval lawn, the other in the glade being chased perfunctorily by Brownie, who quit when he saw a chance to get worms. The young bird was not much concerned , and appeared to avoid his parent with ease. I do not think that B feeds him at all now. Certainly B eats everything himself that he gets from me. However, I have noticed what appears to be an odd reflex on Brownie's part. Thus he "eats for himself" first, then gathers up a few worms and spreads them out on the ground as if to prepare them to be fed to the young bird, hesitates, then eats them himself.

He is well along in the moult and is sprouting new tail-feathers-- the top ones in the middle of the tail.

Late full song. About 5:10 P.M. full song was heard from the direction of the oval lawn. I went there and sat down, but there was no bird to be seen and all that could be heard of thrasher music was an exceedingly faint, though varied, sub-song, I judged, about 25 feet away. Soon, however, it ceased and Brownie, looking like a rag-bag, ran and flew to my knee, looking also, cross and unpleasant. I handed him a

worm at a time at rather long intervals in order to keep him there

up still in for a few minutes. Between worms he frequently preened. The gap is still in his left wing and so much of his under-down shows through

1
in thin places that he looks almost dove color. He was patient for a long time, but finally wanted worms faster and took possession of the

box in my hands fearlessly. He suddenly bolted, running and flying,

to the shrubbery about the lawn, and began a very soft under-song barely audible at 25 feet. This contained imitations of the russet-

backed thrush, tree-toad, ground squirrel, California jay and whist-

ling for the dog. From this he passed directly into full song of

great beauty and power without "working up to it". It contained

many of the familiar phrases already recorded as well as many impossible

to approximate in writing. This was followed by a repetition of

soft sub-song, then full song, and so on alternately until until 5:40,

at which time approaching scripping (Nova presumably) was heard and he

left to meet the new-comer. (Was this for her benefit?)

Here is a bird in the middle of the moult, just noted as looking softest

"grouchy" singing beautifully, and alternating subsong and full song

with no intermediate stage. This particular series of subsongs was

about the nearest approach I have heard to what might appropriately be termed the whisper song one often hears references to which

made.

Human analogue. The whole performance reminded one irresistibly of a performer on

a musical instrument running over his selection softly before playing

it in earnest, and perhaps the same motive was present, yet the fact

that Nova (presumably) was attracted by the song from some place unknown, lends plausibility to the supposition that it really intended

with that end in view.

On the other hand, B's attendance upon the young birds is no longer necessary, he is not, as far as I know, building another nest, so perhaps, despite the moult and his sour looks, he may be happy after all.

After sunset he retired to his new roosting place in the acacia, Bb being found in his usual roost. I wonder why B has moved.

July 29th.

I heard Brownie singing full song at 6 A.M. Julio, who is much interested in the doings of the thrashers, volunteered the information that he heard B singing about 5 o'clock this morning.

Rhody and
field mouse.
kangaroo
rat?

11:10 A.M. A large field mouse (?) just caught in a trap was offered to Rhody in the presence of Mr. W.F. Sampson, but the bird was nervous in the presence of the visitor and would not take the mouse.

After Mr. Sampson left I entered the cage and Rhody came at once and took the mouse. The creature was about nine inches long over all, with a body, I should estimate at about twice the volume of the road-runner's head. The bird took the mouse at 10:25 and began beating it upon the ground by swinging it over its head. This was kept up until about 10:50, by which time the mouse was thoroughly limp, but intact externally, except for a few tufts of fur which had been pulled out deliberately. It did not seem possible for the bird to swallow it, yet he did. The actual swallowing operation took about 4 minutes, after which interval of time, only the end of the tail projected like a cigar. In two or three minutes more, this disappeared also. The greatest effort was required in getting the mouse's hind quarters by the "hinges" of the bird's jaws. Several rest periods were necessary.

A "split"
himself.

After this Rhody came and stood within about 24 inches of my face for a short time, apparently interested in the verbal congratulations offered him, faced me and spread himself out wide and flat to let the sun shine upon his back. In doing this he seems to split himself down the back and his whole upper surface changes from his normal mottled appearance to a furry looking mouse color.

Size of
mouse (rat).

The estimate of the comparative sizes of the mouse and the road-runner's head is believed to be conservative. The body was approximately 50% larger, in all linear dimensions, than the head of the bird. As volumes vary as the cube of the linear dimensions, the relative proportions would be about as 3.4 to 1.

The mouse was so heavy that the bird could not carry it with neck extended, but bent backward like that of a duck in repose.

6:15 P.M. Mr. Cain, from my description says that the creature was probably a kangaroo rat.

Night roosts.

Brownie and Bb took their usual separate night roosts. (B's his latest one in the acacia).

July 30th.

Early song.

Brownie opened the day with full song and was heard again several times during the afternoon.

Late song.

Slumber song.

About 5:45 P.M. he was dozing near the oval lawn and singing softly to himself, opening and closing his eyes. The Slumber Song. Whenever he stopped I talked to him and he began again. The song on this occasion was a miniature of his full song, or, rather, $\frac{3}{4}$ song, (unless I

imitations am mistaken) and contained many imitations, e.g.: Hen, tree-toad, jay, king-bird, ground-squirrel, alarmed quail in flock, whistling for a dog. This was kept up until about 6:15. It did not lead up to full song.

Roosts. About 7:15 B and Bb were in their night roosts. I do not know where Nova and Nb roost, or even if it is on the property, though both are seen occasionally.

Undetermined chase yet. I have seen no determined chasing of the young birds as yet. They both forage for their own food supply as capably as adults. Bb catches bees and handles them apparently with full understanding of their offensive powers. He goes about entirely alone.

July 31st.

Early song. B again opened the day with full song.

Plays alone. At breakfast time Bb was playing about the dining room windows, all alone. He had a riotous game of hide-and-seek with himself about a dwarf azalea and appeared to find plenty of food in the lawn and shrubbery. This is the territory seldom used by the adult thrashers; although Brownie appeared shortly and there was a minor threat, but no serious action.

Slowly follows Bb. About 9:30 A.M. Brownie was seen following Bb slowly toward the oval lawn, 30 or 40 feet behind him. I went there to await developments. B came for worms, then retired to the bushes about 18 feet away to sing quarter song. A similar song, less varied, was heard, at times, simultaneously, and Bb was spotted directly in front of me at the same distance and about 15 feet from B, also in the shrubbery. Both birds could be seen at the same time, and were resting.

Bb gets set for battle. I attracted Bb for worms, knowing that as soon as B saw what was going on, he would take a hand; which he did just as Bb was becoming friendly. Bb set himself for battle instantly with open bill, crouched low to the ground and making harsh noises, then ran off making his infantile call which is given ^{just} after leaving the nest. He remained in

B avoids the vicinity, approaching each time that B retired. B's occasional mild attacks. attacks, delivered perhaps in less than full strength, were easily avoided by jumping into the air and letting B pass by underneath--the same tactics that Snooty used with Greenie. B did not care to make a serious issue of the matter at the time and drifted away, allowing Bb to come to me in peace in the end.

B is perfect Bb is smaller than B, sleek and smooth--a perfect little thrasher little bird. on a lessened scale--in startling contrast to his parent who is now looking nearly his worst.

B sort of B Bb "doesn't like" Brownie any more, though they do get more or less together in what appears to be a sort of armistice.

Nova and Nb are practically invisible. The four birds have never been seen together. The division of the family at the time of leaving the nest seems to have been permanent.

B. B. sings At 1:45 as I was potting plants about 50 feet from the cage, I was again. surprised to hear the road-runner's song repeated a number of times. It has been many weeks since it was last heard. I am inclined to think that, on this occasion, it was a call for food, because he was eager for it when I took it to him in response to his call.

Snooty's greet- His boo with accompanying rattling of the beak, I find, is often ing. used as a greeting and frequently it is very soft.

B song. 4:30 P.M. B singing quarter song at the oval lawn. When Bb came Bb joins B to join him, B caused him to move on. While sitting on my knee B listened intently to Nova scripping someplace, but did nothing about Nova. it.

August 1st.

Early song. There was early morning song for a considerable period.

B, Bb, Nova Later in the morning Brownie, Nova and Bb were seen together.

together. The two former were interested in each other and gave no heed to Bb, Mults ignore although he was part of the time not over a yard from the others. It seems to be a case of mildly renewed courtship, and is the first in-

stance for over a month of the two adults concerning themselves with each other. There was soft singing on the part of B as he followed his mate about.

An hour or so later there was a repetition of the episode; no signs of Nb.

Early song. About 1:30 Brownie was singing loudly near the west window of the living room. On going there it was apparent that Nova, digging in the ground below him, was the object of the outburst. He continued in my presence, but Nova drifted away down the canyon and B followed shortly after, calling.

Roosting. At nightfall B and Bb were in their accustomed roosts.

August 2nd.

Early song. When I left about 5:15 A.M. B had not been heard. On my return about 3:30 P.M., Julio said that all four thrashers had been at the oval lawn together at one time during the day and that B had begun singing shortly after I left.

At sunset chase. About 5:30 P.M. one of the young thrashers was near me at the magpie cage; Brownie was chasing the other one fiercely in and out of the glade and around the bushes and Nova was in the old oak scripping excitedly, as if disapproving of the procedure. I went into the glade and B soon gave up the chase, coming directly to me. Nova faded away, still scripping, in the direction in which ^B had chased their offspring, and the other youngster continued foraging unperturbed by the disturbance. When B had had enough to eat, he went off as if to look for his quarry again. Nb undoubtedly.

Roosting. Shortly after sunset both B and Bb were in their usual roosts. (now)

August 3rd.

Early song. Early morning song by B, which, however did not last long.

Blanks. There is a skunk in the cat trap. One was caught yesterday morning also.

Thrasher reunion. At about 8 A.M. the place was "full" of thrashers. Brownie, Nova

and the two youngsters were all seen at once, on and about the oval lawn, in the upper garden, eating at the various feeding stations (including the one that contains seeds only). B, on invitation, came to me at the front door. Nobody was chasing anybody else. I wish Brownie would conform to my wishes in the matter and allow the youngsters to remain undisturbed.

A little chasing was seen during the afternoon, but the participants, other than Brownie, could not be identified.

5:45 P.M. The two young birds have been industriously digging in the flower bed at the oval lawn for 15 or 20 minutes. They paid not the slightest attention to each other. Both are big and strong, Nb giving the impression of being the more mature in appearance and action. He would not come for worms, ignoring me almost completely, but Bb would. Neither parent was to be seen or heard.

Brownie returned to his old roost in the dormitory tree, but Bb occupied his usual place. Possibly a wind which sprang up about sunset had something to do with B's shift.

August 4th.

Early morning song not heard. Possibly because B has been rather busy (8 P.M.) in chasing the young birds.

11:A.M. There are two young thrashers at the oval lawn, presumably Bb and Nb, as both are interested in worms furnished by me. Also Brownie, Nova (I think) and two more digging under the acacias peacefully near the northerly line. Nova is also moulting--if it is Nova. This is getting complicated and Brownie is now the only one that I can be absolutely certain of.

5:35 P.M. Bb and Nb, I am reasonably certain of the identification, spent most of the afternoon at and near the oval lawn. Nb has developed into a great seed-eater. B did not molest them there, but he was frequently seen going in and out of the bushes at various places all over the property, evidently stirring things up. At about 4:30, he

looked ragged, tired and forlorn sitting all by himself in the top of an acacia where I happened to see him. So I called him down and gave him all the worms I had with me, and then suet mixture. As he did not especially care for the mixture, I went and got soft food for him, stocking up also with worms as a precaution. He ate the soft food hungrily, then suddenly ran to ^a low branch 10 feet from me and began quarter song. After he had been singing without pause for about 2 or 3 minutes, it occurred to me to time him. By watch the actual duration of his song was 28 minutes with only three pauses, none more than about 2 or 3 seconds long, when he had to scratch himself. Except for these, the rhythm of the song was uninterrupted. It would be inaccurate to say that he did not repeat himself during this period, but that was the impression that an uncritical observer might have gained, for he used nearly every imitation that I have heard from him (in the aggregate) and his invention seemed limitless. Except for volume of sound--a surpassing performance. At the end of the period he ran to me and ate worms. There was nothing to indicate that he was capable of making any vocal sound whatsoever. After cleaning me out, he looked intently in all directions as if to detect ^{any} evidence of affairs requiring his attention, made his decision and bolted with a strong parting push of his feet. Presumably he is directing operations somewhere on the premises.

At thrasher bed-time Bb was in his usual perch and B was back in the acacia again. As there is practically a dead calm, it looks as if the wind did have something to do with his return last night to his roost behind the screen in the dorm.

In the matter of night roosts it has been amply demonstrated that thrashers are creatures of habit, but that they are not slavishly bound by it.

The gap is still present in B's left wing. If not recorded before, it should have been, that the feather is not entirely miss-

ing, but is small and distorted.

August 5th.

much early song. 8:45 A.M. Early in the morning thrasher sounds were heard all about the house, and at 7:30 approximately Brownie took position in an oak alongside of the driveway at the west of the house and sang full song beautifully, without moving from that particular tree, until about 8:40. During this period there were two other thrashers, also singing full song, still further to the west down in the canyon, probably several hundred yards away. At least one of them seemed to be singing responsively to B. At 8:40 B decided to go down there and see what it was all about, and I could hear his song gradually getting farther and farther away. Incidentally, while he was at his original post, an echo could be heard of his song. The nearest object from which the sound could be reflected and which at the same time occupies the proper angular position is a very large one, isolated, formerly belonging to Best. As a preliminary guess, its distance is 250 yards. In this case, B's song was audible 500 yards.

Amiability shown by Bb. During the day the two young birds were often at the oval lawn for long periods, Brownie occasionally appearing there at the same time. They all seemed indifferent to each other, although B once ejected Bb from the hole he was digging without chasing him away--an act which he often performed at the expense of Greenie when she was here.

Division feeding. At night B occupied his roost in the acacia and Bb his usual one.

August 6th.

First roost. B opened the day with full song from the tree near my bedroom window. The phrases, this time, were different, i.e. he specialized on different ones. Also the songs were shorter and spaced farther apart. A distant thrasher was also singing down in the canyon to the west. As before, there seemed to be some coordination between the two songs. From this particular singing post Brownie can command a wide territory, both optically and aurally, spread out before him like a

relief map. A good strategical position.

12:50 P.M. Brownie and the two young birds have been at the oval in lawn and the immediate vicinity almost continuously since 8 A.M., all together, singly or in pairs. There has been no chasing and no sign of Nova.

Rhody refused a proffered sparrow until most of the feathers had been pulled off. Since the one he swallowed whole, including feathers, he has insisted on featherless sparrows, even if he had to pull them off himself.

R sings I tried to see if I could induce him to sing his dove-like song, by standing about 50 feet away and imitating it. It did not work, although he plainly was interested. However, when I left, he immediately began it and kept it up until I returned and stood about 6 feet from him. I then gave him the sparrow that he had previously refused. He was not satisfied with my picking job and added finishing touches.

August 6th.

Early song. A little early morning song. (Also a third skunk in the trap).

About 9 A.M. the two young thrashers were at the oval lawn and, at the same time Brownie and Nova (?) were playing about a bench about 90 feet away in the direction of the glade. Soon a third bird was seen with them. The evolutions seemed to be those of courting. Nb- was coming to me for worms, but soon ran over to join the others.

I got the impression that there were 5 birds, but there may have been but four. There seemed to be no effort to drive any of the young birds away, and finally, I called to them and B came to me for worms, showing no excitement.

39 days from nest. This is the 39th. day after leaving the nest, for this brood.

Snooty (See p.322) was nearly crucified on his 22nd. day.

(Before finishing this note I will record what is happening right now, 11:15 A.M.)

Four thrashers are within 10 feet of me outside the window. One of them Brownie, saying: "Stick-to-it, stick-to-it!" They all seem to be following his lead amicably. 11:19. They have gone. Preceding note continues from here.

Snooty (See p. 337) was still here on his 30th. day. Brood No.1 had feathers knocked out of them on their 32nd. day, and on their 33rd. none of them were seen, though seen later at intervals.

Snooty was seen only once after his 42nd. day. (These figures

are approximate only, but serve to show that the present youngsters are not safe from further attack, by any means).

Observations from 10:30 A.M. to 11:10 A.M. (Misplaced due to appearance of thrashers while writing the notes).

B singing sub-song in the glade most of this time and part of it keeping sharp watch on a shrike, but continuing his song. In this song, for the first time, he introduced a couple of phrases from the Black-billed Magpies in the cage. At the end he came to me and said: "Stick to it". From the preceding note it will be seen that he must have followed me to the house and, in some way, have gathered the retinue therein commented upon, and continued the stick-to-it motive which he had just announced in the glade for the first time today.

At 12:15 Brownie was singing a soft undersong while sitting in his old night roost in the dormitory tree. Soon Nova was heard approaching, but she was frightened away by Julio's approach to announce luncheon. When the song subsided, I went and looked the situation over. Brownie was wrestling with the growing twigs in typical pre-nest building activity. I left him there, still busy.

7:00 P.M. Brownie has sung sub-song so frequently and so long during the day that he could be located at almost any time. It varies at different periods, sometimes being full of mimicry, at others not. At about 4:50 he was heard in the dormitory tree where he sang continuously until 5:25 sitting about as far from his night roost as it was possible to get. I stood about ten feet from him for 20 minutes or so, occasionally inviting him to have worms, but he was not tempted. When I left (stopping just around a corner out of sight) he stopped abruptly. In a few moments he sang a few phrases full voiced, just as if he were calling me. When I reappeared he came down from the tree and over to me for worms.

7:27 P.M. At 7:19 Bb climbed to his regular roost. At 7:22 a slight disturbance of leaves in the acacia was noted and Brownie was

found settling himself for the night. (Sunset 7:15, Temp. 62.)
 Though not recorded, the same roosts were occupied last night also.
 Curious how regular these birds are. Roosts of Nova and Nb have
 not been located.

August 8th.

At 5:15 A.M. I became aware of outside sounds near my window and soon discovered that not less than three thrashers were singing full song in the vicinity of the house, and possibly four. Until 5:45 there was no period during which full song was not heard on one side or another, close at hand. At 5:45 it faded away. I went from window to widow on the upper floor and am positive of not less than three birds. This is the greatest concentration of thrasher music to date. While the concert was in progress one of the young birds was foraging quietly on the lawn below, evidently not interested in the performance, but automatically eliminating himself from consideration as a participant. While the singers shifted about more or less, there was no evidence indoors of pursuit, although at about 8:30 there were no thrashers in plain sight about the place, and no thrasher sounds.

Later B appeared silently in the glade as I was filling the dishes, came for worms, then retired to one of his favorite perches 12 feet away and sang quarter song continuously for 11 minutes, when another thrasher, believed to be Nova, came up behind him and made a soft scolding sound, whereupon he stopped abruptly, walked toward me without looking at the other bird, began picking up and dropping soap-root fibre, climbed a tree behind me, sat quietly there doing absolutely nothing except for an occasional phrase or two of imitative sub-song. I left him there, inactive, a relatively rare state for him.

At 10:30 both young birds were at the oval lawn. One of them stuffing himself with cracked chick-feed. Nb?

At 11:30 Brownie was discovered sitting silently on his roost in the dormitory tree. However, after I spoke to him, he began a long

under-song.

to dusting 1:30 P.M. The question is often raised as to whether dusting birds
birds bathe also bathe. Until this moment I have never had anything positive in the way of evidence on this point.

The Vigors Bewick wren at this place is a persistent duster, sometimes dusting many minutes at a time. Just now one was seen showing signs of trying to bathe in a vessel which is kept under a hydrant, but the water was beyond his reach. It was then filled with water and the wren returned at once and had a thorough bath.

Of course, it is not certain that it is the same individual that has been seen dusting.

August 9th.

B returns to B and Bb were observed in their roosts last night. Bb was in his accustomed place, B had returned to the dormitory tree. Perhaps because it was somewhat windy. So far this hypothesis has seemed to fit. There was early morning full song.

Release of Somewhat before 10 A.M. Dr. Reynolds and I opened the door of
aged thrashers. the aviary in which Pat (Little Brownie) and his new friend, Neo, have
at Reynolds been confined, and left it open. In about 15 minutes Pat wandered out
Pat first and began to attack vigorously a hole in the trunk of a pine tree about
out. 6 feet outside the door. He extracted what appeared, from a distance
to return, of about 20 feet, to be four beetles. He then returned to the aviary, where he dug. He went back and forth several times unhurriedly, finally seeming to realize that there was something unusual about conditions, he jumped to the top of the wall, scripped loudly, then wandered about calling queelick. When I left about 11 he was digging under the chestnut tree near the north end of the aviary.

to come out. Neo came out after Pat's fourth appearance and immediately attacked the same hole and got 5 or six things to eat. He then inspected the cracks in the bark and endeavored to tear off the bark. After going back into the aviary once or twice, he busied himself about the garden and was contentedly digging when I left. Both birds seemed to accept the new arrangement philosophically and maintained the same attitude toward human beings as before they were released.

August 10th.

Early song. There was fine early morning song.

Pat back in page. A little before 8 A.M. Pat was back in the aviary again and accepted worms offered. Neo was not in sight. Pat came out, worked on the base of the pine again, getting good results, then prospected around neighboring gardens. He soon returned and discovered Neo pecking thing out of a joint in the aviary woodwork. He sat on the wall above Neo and began to sing and display. When Neo attacked the pine, Pat dropped down near him, still displaying and singing and there was a spirited cock-fight for several seconds in which Pat seemed to be the aggressor. In was terminated by mutual consent, both birds working on the base of the pine tree for a time, then going into the aviary to dig and eat of the food there, Pat also singing and tagging after Neo more or less. I wonder if it is courting, or an attempt to assert territorial rights. Both birds seem perfectly contented, either in or out of the aviary, regarding it and the outside world, apparently, as extensions of each other. At the same time, the aviary seems also to be a place of refuge. So far, the experiment is working out as we had hoped, and other thrashers are also frequent visitors at the Reynolds place.

11:15 A.M. Brownie sitting in his night roost in the dormitory tree without a care in the world, singing and looking down at me benignly.

4:30 P.M. Brownie in the same place again (not still). No amount of cajoling and display of worms could budge him. I suppose he is thinking things over and formulating plans for the future.

7:30 P.M. A chilly breeze has sprung up from the north west, and B has wisely chosen to spend the night at his old roost in the dorm behind the wind screen which was placed to protect the October-November nest. Bb seems to have found his regular roost untenable and can not be found. It is also exposed to north west winds.

August 11th.

Early song. A little early morning song.

About 7 everything was quiet about the place and not a thrasher

terribilit in sight. However, I had no sooner seated myself on the bank of the
masterfulness. road by the old oak than Brownie ran out to me . I gave him worms,
 and when he had had enough, he climbed the old oak, "scripping and
calls. queelicking" loudly, to the topmost point of a dead limb. I called to
 him: "Pityourki, Brownie", and, singularly enough, he immediately began
 to sing full voiced in short detached phrases, turning his head to
 look in various directions. Plainly calling. Exactly the way he
how come. called Nova in the first place. In 2 or 3 minutes there was a rustling
 in the leaves of an adjoining oak and Nova, looking huge, flew across
 the gap between the trees, disregarding my presence, and climbed rapid-
lets instruct ly up the bare branch to her mate. She is also somewhat shabby. B seem-
plans. ed to give her some instructions with low gurglings and she flew off
 again, but returned immediately. This was repeated and on a third
 return B advanced to meet her; they gurgled in friendly manner and
down young- Nova again left. Almost immediately both youngsters came, one flying
start and climbing directly to Brownie, the other sitting, calling, a little
moment. below him, but in the same tree. B and the first one whirled about
the gold un- in the dead branches, B pursuing but unable to overtake the youngster,
 who dodged and doubled expertly without leaving the tree and, it seem-
 ed, without much fear. After this they dropped to the ground and I
 was unable to follow further operations, although there was some sort
 of a chase.

displaced When B first came to me meekly, looking shabby, forsaken and lone-
symmetrical some, I felt sorry for him, thinking also that he was, in some measure,
B. being punished for his masterful attitude towards other thrashers.

But how quickly he changed the entire picture! The poor tramp,
 with a few imperious calls, quickly gathered his whole tribe from
 nowhere and showed clearly that he is still the master with the
 magic touch. The self-willed wife and the youngsters that can only
 reasonably expect punishment from him now, alike gathered at his
 summonns. He even caused Nova, for the time being at least, to

overcome her fear of human beings and come out openly in their presence. Certainly a masterful bird.

This is a new performance at this place, and I am unable to explain it, even to my own partial satisfaction.

At about 7:15 P.M. Brownie was settled for the night in the dorm behind the wind screen, there having sprung up, about sunset, a chilly breeze. Bb was again absent from his accustomed place. I suppose the wind was too much for comfort. (Both of these roost are on the crest of an exposed ridge).

August 12th.

Early song. The usual (now) early morning song.
 44th. day 7:30 AM This is ^{the} 44th, day for the young thrashers since leaving the nest, and they appear to be good for an indefinite time, as Brownie has been unusually tolerant of this brood. While I have seen him chase them a few times, there has been none of the fierce persecution visited upon the others, and they frequently appear in his presence without being molested. I have made very few attempts to interest them in me as a source of food, yet Bb is inclined to approach me at times voluntarily. Thus three times today when I was busied about other matters and not thinking of the thrashers at all, on turning around suddenly, I found him just behind me. Each time he darted off only to return when shown worms.

Night roosts. 7:30 P.M. B in the dormitory tree, Bb not seen.

August 13th.

Early song. Early song not heard.

B and 2 young About 8:30 A.M. B and two young thrashers on the oval lawn--no signs of conflict.

About 9:30 B came for worms in the glade. Then Nova(?) and one youngster. After eating, B jumped down and the youngster came to eat worms dropped at my feet. B saw all this and did not interfere directly, but jumped to my knee for one more worm, at which the young

bird, Bb, opened his mouth wide enough to emit a roar, but all that issued was a mild complaining sound. He moved off 3 or 4 feet, but returned at once when B moved to a perch about 10 feet away in plain sight and preened. B saw the feeding operation that followed, but raised no objections. I left them both there, and in passing the oval lawn, noted both Nova and Nb there in amicable relationship. None of this was to be expected, based on observations of earlier broods. The usual critical period recorded in these notes appears to be overdue.

This opens the field to interminable speculation, such as: the influence of Nova and the splitting of the brood as soon as they left the nest. (This is her first brood here). Etc., etc. Julio's theory is that Brownie "needs them" as he is lonesome, (presumably because Nova stays away from him so much, as also do the youngstars).

At noon B was taking his siesta behind the wind screen in the dorm.

Six thrashers present
At 4:30 there were 6 thrashers located simultaneously on the place. Two were easily identified by their tameness as B and Bb. I suppose two more were Nova and Nb. As a guess, the others may have been Pat and Neo, as they have been wandering away from the Reynolds's. Curiously enough, Brownie did not object to the presence of any of them and he could tell where they all were as well as I, because he was with me at the time.

R.R. has blue "parters".
I find that Rhody has blue bands around his legs at the ankles(?) of the same hue and shade as the blue back of his eyes. I have not seen this marking noted in any of the hand-books. *gml is from status shed*

3 in 1971.
5 located.
At exactly 7:03 P.M. Brownie climbed the dormitory tree to his roost. Bb was not in his known tree, so a search was begun under unfavorable light conditions, at a place in the lee of the spur where conditions were thought to be ideal. Quail and spotted towhees flushed, but a thrasher was quickly located that did not join the exodus, merely becoming somewhat restless. He was left in peace in the

heavily foliaged oak growing at the north east corner of the property.
 I believe Bb the only other thrasher here that would have brooked
 the intrusion to the extent that this one did.

August 14th.

Plenty of early morning song.

Pat and Neo.

About 9 A.M. I went to the Reynolds's. Pat was digging next door, but finally returned to the aviary and ate and drank hugely. Evidently this business of being at large has its disadvantages. He was unconcerned when I followed him into the cage and took worms offered. I am told that Neo and Pat seem to alternate more or less in their appearances about the place, but both patronize the aviary.

Sings in bath. New.

On my return here B, Nova and one youngster were seen together. B came into the upper garden and bathed in the pool under the rhodendron, singing while bathing--a new performance.

Sings in bath. New.

Lots of undersong by B during the day, occasional full song and resting periods in the dorm.

Both youngsters still here.

August 15th.

Thrasher song everywhere.

Frequent early morning song, both here and at Dr. Reynolds's. Thrashers appear to be abundant now in this vicinity. All four birds still here.

Attrition policy effective?

There was a mild pursuit by B about 6 P.M., but he did not succeed in getting to close quarters and was easily eluded. Nevertheless, a policy of occasional mild attrition may be as effective in the end as the vigorous assault in relays used by Brownie and Greenie.

August 16th.

Early song.

There was early morning song.

Thrasher song everywhere.

About 9:30 I went out to size up the thrasher situation. Bb came to me shortly in the glade, and in a few minutes, another one walked across it unconcernedly and disappeared to the west. A few minutes later Brownie was seen chasing a thrasher along the road, but not

fast. At low speed his gate is no longer graceful, but waddling. As soon as he saw me he abandoned the chase, reversed his course and came to me for worms. He then waddled off, reestablished contact with a thrasher (the same one I suppose) and gradually crowded him far off to the east outside the property. The fugitive was not Bb, who attended strictly to his own affairs while this was going on, although he was in the zone of action. At this time there were four thrashers definitely located on the place and perhaps more. If B intends to keep this territory free of others of his kind, he is destined to be an extremely busy bird. So far, I do not think he has had any support from Nova, at least none has been seen.

The territory over which he is known to range--there is no evidence of its not being more extensive--is 500 or 600 yards long and of irregular contour, depending largely on the disposition of the cover. At the eastern end it is known to be at least 200 yards wide. At the western, it is known to be at least that and probably much more, as cover is very extensive. In the middle known range, which includes this place, it seldom wider than about 75 yards, though occasionally he strays outside that limit.

12:20 P.M. Shortly after Brownie and the other bird thrasher went off to the east, full song was heard from that direction and B and two other thrashers were located near the top of the dying cypress at Robinson's. The song could be heard easily about 300 yards away. On approach near the tree, the three birds could be seen in amicable relationship, and a medley of sounds issued continuously from the group. There was no clue to the identity of the two other birds. The thought occurs that this tree is in no man's land and all have equal rights there.

At 12:20 it occurred to me to look in the dormitory tree to see if B might not have taken up his retreat there in order to rest after the morning's excitement, and, sure enough, he on his night roost

motionless and voiceless. A few minutes later he had taken up his undersong.

At 1:20, after having annoyed another thrasher (Bb?) in a tree near the berry patch, just enough to make it leave, B again retired to his night roost for a rest of 20 minutes, during part of which time he sang slumber song. He then left for other enterprises.

August 17th.

A lot of full song up to about 7:30 A.M.

At 8 the two young thrashers were at the oval lawn. In a few minutes Brownie joined them peaceably. There was no sign of a chase. B came up to me in the upper garden when a thrasher was heard calling from near the glade. B answered each call with a chirp so soft that it could not be heard by human ears more than 2 or 3 yards away. If he was really answering instead of merely automatically reacting to the call, the question naturally arises as to whether the other bird could hear it, and if so does the hearing apparatus of birds respond to sounds of higher frequency than those perceptible to the human ear.

9:50 A.M. Brownie and Bb are in the upper garden (patio) just outside the window. Bb, at the moment, if appearances deceive not is trying to get Brownie to chase him! He hides under an azalea near which B is working and darts out at him suddenly, then retreats. He circles about him and makes dashes at him from various quarters. B responds mildly, but prefers to dig and sing half-song, which he has been singing for 15 minutes. I have been watching these two birds, especially, for 20 minutes. At 9:30 B was on the oval lawn, Bb in the driveway a few feet from him. Bb saw me arrive and sit on a bench and, without, invitation, ran to my feet where I dropped worms to him. B came, and Bb retreated about 6 feet. Each time B threatened mildly and advanced on Bb, I spoke to him and he stopped and looked up at me making inarticulate^a interrogatory sounds. This was repeated 4 or 5 t

times, B returning to me each time and Bb approaching as B retreated from him. Undoubtedly B's guiding motive in deferring pursuit was his expectation of getting food from me, but the illusion of his understanding me and obeying was perfect. Moreover, I did not offer him food, and he fell to prospecting on the lawn. Bb went to the pool to look amongst the shrubbery. B followed soon, but there was no sign of enmity. When I heard B's half song, I came here without being seen and observed them without their being aware of my presence. Thus their actions were natural. During the first part of this episode, Nova and two other thrashers were also present at distances ranging from 25 to 75 feet. They were foraging and occasionally indulging in what appeared to be play, and were still more or less in the same vicinity when I came into the house. What has come over these birds, that 5 of them can occupy the same small area peaceably--when, by all local precedent--at least two of them, Bb and Nb--should have been driven off long ago, and the third one, whoever he may be, should have been driven off instantly and followed relentlessly for 200 yards or more beyond the property lines?

Also what has happened to encourage Bb to tease his parent and "get away with it" at such a critical time? The division of the family into two groups at the outset, Bb with Brownie and Nb with Nova, has undoubtedly had some effect in causing a departure from actions observed in connection with previous broods. Bb has become like Brownie, and Nb, shy like Nova. Neither has had a young bird to play with. Brownie has not had the constant companionship of Nova as he had of Greenie. They are seldom seen together. B and G were inseparable. Perhaps B doubts whether he will have company if he drives Bb away. Yet, as witness his successful gathering of them all to him from nowhere within a few minutes observed the other morning, it seems that he should have no difficulty in this respect. And what was the congress in the cypress tree yesterday all about, and

was the exodus of B and the other bird from here a chase, or merely a joint departure to attend the meeting with a representative of the adjoining territory to discuss boundary lines, etc.?

Maybe the place is getting so full of thrashers that B has abandoned the attempt to chase them all away and is waiting for them to drift away peaceably in due course.

10:45. It occurred to me that B ought to be "resting" about now, so I went to the dormitory tree. He was there, and as soon as he saw me began worrying the surrounding twigs with his bill, as if to show that he had been working all the time.

Towhee song. 10:50 A Brown Towhee displaying for the benefit of his mate and singing continuously a really pleasant little song.

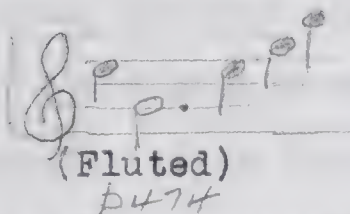
About 11. B on the ground about 25 feet away mildly interested in seeing the road-runner swallow lumps of meat.

Nova called from the old oak repeatedly something like:

Tuck-tuck, ter-cl-e-e-r, ter-cl-e-e-r.

This is a very rare occurrence, as only once or twice previously has she been heard to say anything but khrick or queelick.

Brownie gave no heed at first, but finally began to gurgle, then answered loudly from the ground:



Peet-byouick, peet-byouick.

After a few interchanges, Nova sailed down to him and was about to light alongside of him when she saw me (now 15 feet from B) levelled off and landed 50 feet farther. It is so unusual for her to call B or show any interest in him, these days, that I stole away quietly to let them carry out their plans.

Twice more during the day Brownie was seen resting on his night roost but there were no nesting activities.

August 18th.

There was much singing during the early morning hours. All four thrashers were seen at intervals throughout the day, Brownie singing sub-song often and long and occasional full song. One of the youngsters also sang sub-song. No chasing was seen.

August 18th.

More full song in the morning.

4:20 P.M. Up to this time Nova and her bird have not been certainly seen.

At 3:15 neighbors' children who had brought 4 lizards during the day for the road runner, came with a small gopher snake, 10 $\frac{7}{8}$ inches (28 cm.) long, which had evidently just died.

I called Brownie for a worm, which he got; he then ran off with the snake, stopped at 20 feet, and for 18 minutes tried to break it up without success. He then tried to swallow it, but it "touched bottom" when about half way down. For 12 minutes more he tried to get it farther down, but without success. Part of this time he rested with the unswallowed part of the snake lying on top of his back. When he quit he came to me immediately for worms.

I then examined the snake. The skin on the body was slightly broken in two places, but the head, which had been swallowed first was crushed, though I had seen B make no attack on that part. On the head were small particles which looked like the horny covering off of meal worms. Also there appeared to be other portions of the contents of B's gizzard, small in quantity. I had been wondering during the swallowing operation whether B might not be depending upon his own internal mechanism to shorten the snake on the head end so that he could "follow up" continuously with his swallowing operation and eventually get it all down. I am inclined to think, by the appearance of the head, that B worked on some such "theory". This is one of Brownie's few failures.

I then tried the snake on Rhody. He came and took it with no great enthusiasm, carried it away, dropped it, then returned to me, looking inquiringly all about to see if there was any other prospect.

One of the magpies then took the snake and began pulling it to pieces and swallowing it in a very practical manner.

I then offered Rhody a live lizard which he snatched quickly, gave it one hard slam on the ground stunning it, then circled about it admiringly. Whenever a magpie approached he managed to get there first, picked it up and laid it down in another place, admired it, then walked off a short distance, as if to abandon it. This was done four or five times and ^{it} looked as if it might be a game that he was playing with the magpies. When, however, both magpies got interested and he almost lost it by pursuing these tactics, he swallowed it hastily.

We have here an example of the reactions of three different kinds of birds toward the same object.

Brownie, of course, was not big enough to "hold" the snake and not equipped with the proper kind of bill to break it up. The road-runner could have swallowed it whole without winking. I believe he was simply not ^g hungry enough. In the case of the lizard, which is not only a preferred food, but at the same time offers something that appeals to the hunting instinct, Rhody's indifference broke down--notwithstanding that he was, I believe, not hungry, and he indulged his sporting instinct (this is the first instance observed) up to the point where a continuance might cause him to lose his prey.

The magpies will eat "anything" and have powerful beaks.

5:30 P.M. All four thrashers here, Bb coming out of the bushes to get worms dropped at (and on) my feet, but not taking them from hand.

In passing the magpie ^{cage} just now I stooped to pick up a small blue feather about an inch long. Instantly the magpies set up a terrific clamor. I offered it to one of them and he took it.

The first time I pulled the feathers off of a sparrow, while in the cage, preparing to offer it to the road-runner, the magpies, who had been indifferent to my having the bird in my hand, immediately began to scold loudly and gathered about me. This has happened on each such occasion, and each time the birds raise no objection to my having the bird in my hand.

Next I noticed that whenever I picked up a feather from the floor of the cage or out of the bathing place, the same thing happened.

5:45. I went by the cage again and picked a small piece of road-runner-down off of the wire. Again the magpies moved over toward me scolding loudly. No matter what else I do, they do not scold. The scolding consists of a rapidly uttered series of penetrating kacks, uttered with bills held open to the widest, and lasts a considerable time, even after I have disposed of the feather.

6:00 P.M. Mr. Sampson just brought four live sparrows for Rhody. I demonstrated for his benefit, the magpie complex above noted, by picking up one feather while they were perfectly quiet. Immediately they set up a loud clamor.

Prediction re 7:10 There is a cool breeze from the north west--the first for several days and B has not been behind the screen in the dormitory tree. **B's roost.**
If there is anything in the wind theory, he should be there tonight.

Verified. 7:05. I win! He is.

August 20th.

Magpies and Rhody. About 9:15 a dead sparrow was taken into the cage. The magpies moved over to watch while I held it in my hand. They were perfectly silent. Rhody did not want it, perhaps because he had just had a mouse. I pulled off a feather that was sticking to the sparrow's bill. Silence. Pulled out one tail feather. Still silence. Another was pulled out, then the magpies began scolding violently. A few minutes before this, in the presence of Dr. Reynolds, I picked up one feather outside the cage with the same result.

Magpies, Rhody and live sparrow. A live sparrow was let loose in the cage. The magpies began chasing it at once, but could not catch it. Rhody watched interestingly, but did not join the chase, although he shifted about from place to place. However, three times, as the sparrow flew by him, he reached out with lightning-like rapidity and plucked it out of the air with consummate precision. Each time he released it deliberately, seeming to have no interest in it, other than to pick it out of the air when it got near enough. He gave no warning of his intentions at any time. The sparrow was then removed, unharmed, apparently.

11:45 A.M. The only thrasher seen this morning up to a half hour ago was B, in the dormitory tree, who, when discovered, suddenly pretended to go to work on an invisible nest, then began long $\frac{1}{2}$ song.

I started to look for them, and went to the oval lawn. Nothing but quail. I waited a few moments. First one thrasher, then another came out, until there were 5, all in sight at the same time, from contact (B) to 25 feet away. Bb and B waited by my side for worms patiently. B's new feathers are lighter than the old ones, with a bluish-silvery-gray sheen. Bb was the smallest and slenderest thrasher in the group. Nova looked huge and ragged. One of the others, I suppose, was Nb, but the 5th. one--I dunno. No bird interfered with another in any way. They were eating, digging, sunning and having a good time. One was eating pyracantha berries--unusual here.

Strange that Brownie did not get in and stir things up. This must be the Season of Great Peace. Yet at this same time last year, Snooty, the last survivor of ^{the} fourth nest, was being hounded mercilessly. It would seem logically to be a time when thrashers should become more tolerant of each other, on account of the moult and the presumable end of the normal nesting season. Yet last year's experience does not show any parallel.

1:10 P.M. Two thrashers digging amongst the azaleas just outside the window. I do not recognise them.

1:15 By elimination they are neither B nor Bb, because B is in his night roost and Bb near the magpie cage. Again B, when caught napping, made a great show of arranging twigs, still attached to the tree, however. I wonder if he has simply thrown up his "hands" hopelessly at the prevalence of thrashers here. If so, he himself, is chiefly to blame.

August 21st.

A great deal of early morning song; yet, just before 8 o'clock, I could not hear or see a thrasher anywhere. There was not even distant

singing.

About 9 the first thrasher seen was Nb, who came from the chaparral outside the fence without being solicited, for worms. A new phase in his behavior was his gathering up worms in his bill, then putting them on the ground and preparing them, then picking them up again and running off toward the bushes making the "blue-bird" approach call, just as if he were an adult bird feeding young.

Shortly afterwards the place was again "full" of thrashers.

2:30 P.M. The immediately following observations cover unusual and in some instances, unprecedented behavior here:

Just before noon B jumped to my knee in the glade, now beginning to look fairly respectable. (I.e B is).

Bb came and scolded with open bill when he saw B, but hung about. B would not let me give Bb any worms at first, or rather he would grab them all, but finally retired to a point behind me where he sang continuously for several minutes and permitted Bb to get all the worms.

Bb then climbed the old oak and entered nest 6 (the first one of this year). There he worked on displaced twigs and lining and removed oak leaves, then lay down in the nest. 20 Minutes later when I left he was still there and B was still singing undersong from a point where he could see everything in the glade.

I returned at 1:15, at which time Brownie himself was sitting on the nest, Bb on the ground. Both came to me for food and I was able to supply both, there being no chasing.

At 1:38 Brownie returned to the nest and lay down in it. He did not leave it until 2:12, nearly three quarters of an hour occupancy

At 1:45 he began to sing in the nest, sub-song.

At 1:50 Nova, much to my surprise, entered the glade quite fearlessly and went up to the nest. B greeted her with the Russet backed thrush song, turned and faced her and she came down into the glade, where she dug, preened and sunned in the open before me. Bb was a little worried about her at first, assuming an attitude of defense, but the worst she did was to appropriate for her own use three of the holes which he had dug, ejecting him in the process.

Nova was shortly joined by another thrasher (Nb) and both wandered away.

Bb hung about me all the time, digging and sunning and hoping that I had more worms. When a chipping sparrow that had been drying himself on a branch nearby flew over his head, Bb followed on foot and tried to catch him.

About 2:05 Brownie began to dig in the bottom of the nest with regular thrasher side-sweeps and piled the lining up about the rim and over himself, so that he appeared as if immersed in a kind of haze. At 2:12 he came to me, but I had nothing for him.

I neglected to record that Bb spent another period (5 minutes this time) in the nest, a few minutes before Brownie entered.

Bb's behavior in the nest was just like that of an adult bird. These notes have recorded his being there before, but that was long ago. He has been out of the nest in which he was born for nearly 2 months (lacking a few days).

Brownie and Nova are still tolerant of his presence (as well as that of Nb and others which may be members of former broods).
 → during this period

At one time, Nova, Bb, four quail, a chipping sparrow and two wren-tits were an average of about 10 feet from me at the same time and within 2 to 6 feet of each other.

August 22nd.

Plenty of early morning full song and occasional similar song throughout the day on the part of Brownie, who also sang a great deal of sub-song, some of it from his night roost which he patronized several times before retiring there at 6:54 P.M.--one minute before sunset.

While Brownie is still somewhat ragged, it is curious how much lighter he is in tint and different in color. The difference is great enough to make me uncertain of his identity unless he comes to me or does one of the things that he specializes in. His head, throat patch, breast^{back} and belly are all lighter, and there is a silvery bluish sheen which makes him appear a light gray (I have no standard color charts) in ceratin^a lights. The wings and tail do not seem to have changed. Last year it was also noted that he was lighter in his new feathers.

It would seem, therefore, that the effect of light and time on his plumage is not to bleach or fade it, but to "tan" it and make it browner. His throat-patch is now nearly white, instead of being a cream color. This may be merely an optical effect, due to the blue in adjoining surfaces. I have seen no moulting of the throat-patch.

August 23rd.

August 23rd.

Unusually loud Brownie was extremely enthusiastic in his early morning song period. singing.

He was singing over in Reynolds territory about 8 o'clock, almost continuously, and so loudly that, from my room, I thought he was near the oval lawn instead of being 250 or more yards away, as he was, in a certain tree. I could hear him even on the far (western) side of the house and do not doubt that he could be heard for more than a quarter of a mile easily.

Company among thrashers. During the day four to six thrashers were frequently seen here, including B who does not stay away long, Nova and the two youngsters. One of the outsiders is moulting and fairly tame.

All seem on a friendly basis--no chasing--some play--considerable talk--no nesting actions.

I suspect the outsiders to be members of former broods of Brownie and Greenie.

August 24th.

1

B's early song again rendered both here and in R territory. This day

Read-run- much the same as yesterday.

His powers of Rhody's digestive capabilities are little short of miraculous. digestion.

He has had six sparrows this week; two of them this afternoon not more than a couple of hours apart. I took most of the feathers off of them, but otherwise they were intact. All were swallowed whole according to his standard practise. I have never found any pellets cast up by him, nor have I seen any movements by him that might be construed as an attempt to disgorge indigestible portions. So far the evidence is all in favor of his digesting bones, beak and skull, feathers, feet and everything else that goes to make a complete sparrow.

He never bathes, but he is an inveterate duster, although, from the fact that he seems to prefer hard rather than soft spots, and also raises little dust, it looks more as if he were really concentrating on scratching his chin, throat, breast and belly. He is shedding his body feathers profusely. Perhaps he itches all over.

I have been told that birds, when moulting, do not pull out their feathers. However, Rhody has been seen to take hold of one of his long tail feathers near the base and pull it out deliberately. Nor was it a feather that gave any obvious evidence of falling. He held it in his bill several seconds.

Instances of fallibility paralleling human experience are very amusing. I gave him a piece of meat on which a feather was stuck. He laid it down and took off the feather, but it stuck to his bill, and when he picked up the meat, the feather adhered to that, so he laid it down again. Then followed a series of repeated efforts to get rid of the feather, which

stuck first to the meat and then to his bill. Finally, with a quick flirt of his bill, he succeeded in sending it sailing away.

It is curious that he should be so fastidious about one feather on his meat when he will swallow hundreds attached to a sparrow.

R's toe arrangement - ant a handicap. Under certain conditions, such as endeavoring to light on a perch longitudinally or walking diagonally across the edge of a shelf, he seems to miss the third toe in front and makes missteps apparently due to its absence. Consequently he is subject to falls, usually checked in time.

One gets the impression that the turning back of this toe is so recent an occurrence, in an evolutionary sense, that the tribe of Road-runners has not yet had time enough to readjust itself to the new arrangement; or perhaps that the two front and two back scheme was evolved to fit a mode of life that has since been abandoned, with the result that it does not fit ideally into present conditions.

August 25th.

2 places in the Amongst the thrashers the day was about as usual. Brownie, however, varied his siesta periods by actually placing a few loose twigs at various points within a few inches of his night roost in the dormitory tree. On such occasions his solemn concentration on the task is comical, and he either pretends not to see me or else regards my presence as inconsequential in the cosmic scheme.

Thrasher reaction to young pheasant For the last three days a young, half-grown pheasant of Dr. Reynolds has elected to come here and stay. The young thrashers are frankly afraid of him; the older ones merely careful. At one time there were four of these birds and the pheasant all on the small oval lawn at the same time.

Quail reaction to same bird. There was a violent disturbance among the quail this afternoon and loud outcries preceded a general exodus from a focal point. On going there the young pheasant was found, calm and passive, at the point of divergence. This was a surprise, as I had expected a hawk, and, as a matter of fact, the pheasant did not look unlike one at the first glance.

August 26th.

Thunder does not stop 3's singing. The day opened with heavy clouds and peals of thunder in the distance. This did not interfere with Brownie's musical performance, first heard at 6:30 A.M. He gradually worked off toward the south east and was heard singing loudly at the Robinsons' between 8 and 8:30. He was in the top of a deodar near the sidewalk and continued his song when

Reynolds
territory?

I went over there and tried to get him to come down. It was found that his interest was held by another thrasher also singing loudly to the east, about 100 yards away, in Reynolds territory. I went over there and the two birds sang more or less alternately for some time. Then the songs ceased and there was scripping about midway between the two points amongst the bushes.

Pat and Neo
still return to
age.

The two Reynolds thrashers continue to return to the aviary for food (and refuge?).

B was soon back again at this place, singing loudly from point to point.

to getting tame.

Bb, whom I have neglected for the last day or two, came to take worms from my hand almost like a veteran. He appears to be in incipient moult.??

Underestimate
his dist-
ance.

10:30 A.M. B is still singing full song here. (An error--he is really 250 yards away--and windows are closed.)

Sampson thrasher.

A thrasher has now been hanging about the Sampsons' for a week or so. The neighborhood is getting attractive to them.

Pat attacks
snake.

About 12:30 Dr. Reynolds brought over a live gopher snake that

Pat, true to thrasher form, had discovered at his place and was pecking and dancing about.

reaction of
magpies and
R.R. to snake

We put the snake in with the road-runner and the magpies to observe results. The snake was one of the most vicious ones that I have seen, striking fiercely and swelling its head out into a sharp cornered triangle, hissing fiercely whenever it struck. The reactions of the birds toward the snake were almost precisely nil, although it must be admitted that they were somewhat disturbed by the presence of so many people present. After they were allowed to calm down by our leaving them unobserved for a time, they behaved no differently..

Still later everything was as peaceful as ever. The magpies showed a little curiosity about the now motionless reptile and one of them approached it calmly to within about 18 inches, whereupon the snake struck, but the bird dodged and took no further interest as long as I was there. The road-runner, reputed slayer of rattlesnakes,

was even less concerned and did not even go to have a look at him, although in passing him on one of his regular circuits of the cage, he glanced at him casually. The next time I went out to look, the snake had crawled out of the cage.

Brownie spent most of the afternoon at Robinson's singing loudly almost continuously. A great display as to volume and quantity, but otherwise not in his best form. About 5 he was heard on the way back and, when heard calling in the old oak, I went out and talked to him and he sang full song for about 10 minutes of far better quality. He would not come down to me at first, but Nova joined him in the tree, whereat he ceased singing as if satisfied and dropped down to me. He was plainly somewhat excited and soon left to join Nova.

Bb made up to me for B's temporary defection, being unusually friendly, hanging about near me most of the afternoon, beginning when I was setting up a camera in an endeavor to get a moving picture in colors of a hummingbird on a "hummingbird's trumpet". (Zauschneria). Bb suddenly appeared at my feet, pecking them and the ~~XXXXXX~~ feet impartially. He was rewarded with worms from the hand and thereafter returned every few minutes for more, essaying two flights (the first) to my knee and singing a sweet little undersong about 8 feet away. If B should allow him to stay he should make a fine pet.

Just before B's return the pheasant was enticed up to the road-runner cage to note any signs of mutual interest. It was hoped that each might mistake the other for one of its kind, but they apparent-

ly did not. Rhody stared at first and erected his crest, but went off to dust and drink indifferently. The pheasant was even more phlegmatic.

Rhody finally went up and lay down on a shelf with his back

toward the visitor. Two yellow-jackets, attracted by the smell

perhaps of the fresh meat about him, as he had just had some, buzzed over his head. Instead of trying to catch them, he cringed, and when one of them lit on his back, he bolted. This was in sharp contrast

to the thrasher attitude toward these insects which are a favored ^{though they avoid} them in numbers. thrasher food. It just happened that Bb, a few minutes before, had caught one near me. In typical thrasher fashion, he immediately rejected it from his bill, following it up where it struggled on the ground, breaking it up slowly and deliberately before finally disposing of it. ^u It is curious how the ability to distinguish between harmless and dangerous insects appears in these birds as soon as they leave the nest--as these notes record.

I suppose B's behavior at the Robinsons' was connected with the rival heard there this morning and that it has something to do with definition of territory. Probably that area is the overlapping zone.

6:00 P.M. I suspected that B, after his exciting day, would be found resting in his retreat, and he is. What a marvellous concentration of energy he represents!

August 27th.

After opening up here with his early morning song Brownie again interested himself in affairs off to the south east for an hour or so, singing frequently. He also sang full song often during the rest of the day, both here and there. His last song was heard at a little after 6 P.M. Contact with the thrashers during the day were mostly with Bb, who seldom strays far from the focal point of the property and is appreciative of the personal benefits derivable from keeping posted on the movements of human beings.

At times all four of "my" birds were accounted for simultaneously. Bb seems to be at present the homebody of the group.

August 28th.

Not much early song. Brownie, for some reason, chose to confine his vocal efforts to the immediate vicinity of the oval lawn, where he sat for practically four hours, almost on the same perch, singing sub-song continuously. He chose a clump of oleander, Fremontia,

ceanothus and cotoneaster as his singing point, and although the foliage is not especially thick, and I could tell within 6 feet where he was, it took 5 minutes to lay eyes on him sitting back toward me and not at all interested in my offers of food. Bb repeatedly came from the ^{bushes} ~~vicinity~~ to get worms without being solicited, but not B, until on one of my visits to see if he was still there, he came flying, running and bounding like a rubber ball and ate all of my worm supply, then, with a strong push of his feet, headed for the glade. Now, why the change from yesterday?

2:45 P.M. A short time ago at the oval lawn, there was some kind of a flurry involving, B, Bb and a rabbit, in which it seemed that the rabbit was being attacked and driven off by the birds. I was about 25 feet away, but the action was too rapid to follow easily. In any event, it was the quadruped that fled.

9:30 P.M. The rest of the afternoon brought forth no new events; Brownie, however, continued subdued all the rest of the day, singing undersong and staying home, with occasional thinking periods at his night roost in the dormitory tree. He seemed to prefer to be alone, until a little after 6 P.M. he began calling from the old oak as if summoning his clan, and whether or not that was his purpose, there ~~were~~ responses from different directions converging upon his location.

During the last week or so the thrashers have used the upper garden, just outside this window, more than during many months preceded put together. They seem to be waking up to its food potentialities. One of the Kurume azaleas (in full bloom in August) continues to be a sort of May-pole about which one of them cavorts all by himself with extravagant posings and sudden dashes as if playing with a companion invisible to human eyes.

The Season of Great Peace still seems to be with us.

August 29th.

In general doings in the thrasher world were little changed. Brownie hung around home most of the time, in fact, was not known to leave the place. Bb came for worms occasionally. The other two, while probably present, were not definitely identified. I was busy most of the day on other matters.

Rhody's new
singer

For the first time Rhody, when I handed him a piece of meat, instead of taking it without comment, first opened his bill wide and made a soft, plaintive squeaking sound, not previously heard.

August 30th.

Much early morning song by Brownie from the vicinity of the oval lawn, and although I was again busy with other affairs, he was on the place whenever I looked for him, as was also Bb.

About 5:30 P.M. B began full song from the old oak and kept it up until about 6.

August 31st.

Early morning song here, then, later B went off to the S.E. and sang there. He returned to the old oak and began singing there about 9:15. Another full song was heard at the same time, so I went and stood in the road near B. The other song, of lighter character than B's and strongly suggestive of the mocking-bird's, came from a tree about 20 feet from B. This was determined by shifting about carefully. Soon a third full song, more like B's was heard behind me just outside the fence. By again moving about carefully and catching occasional glimpses of the singers, I reached a point about equidistant from all of them. B did not approach any of them, but sat fixedly at one point, singing and looking in various directions, for a half hour. The other birds shifted about, one of them joining B. This, I think, was Nova. If so, she is a good singer. The song of the other ceased. B paid slight heed to Nova, who retired to another tree of the glade and sang occasionally. When B stopped singing he

began a variety of soft calls, some of which can be roughly approximated by:

Europeán;

Wheet-reety, korra, korra, korra. The korra deep and throaty B then came down to me for worms, repeating the phrases noted, very alert and watchful, though not with fear. His attitude was that of one desiring to keep in touch with outside affairs while otherwise engaged.

He then returned to his post in the old oak and again sang loudly, being answered by Nova(?) with her mocking-bird song mixed with standard thrasher phrases. Soon all song ceased and was replaced by talk between B and the hidden bird. 50 minutes from the beginning of the observation period, I looked at my watch, and when I looked up again, B was gone. All was quiet, no birds in sight.

Going to the oval law, B was discovered eating pudding. Soon Nova came from the direction of the glade. A third one appeared from the bushes, and, shortly there were four of them all looking at me at once. A tossed worm brought B and Bb. So much was certain. One of the others was Nova with missing feathers on her neck and rough back, and the third was probably Nb, looking big and strong. The utmost harmony prevailed and they all went about their digging and suet eating without friction of any kind. Finally they all retired and talk was heard from the adjoining shrubbery and an occasional bird reappeared, one being seen to eat pyracantha berries--still not a common sight.

The evidence, though inconclusive, supports the view that at least one of the young birds was singing full song without any observed transition from immature "recording", though this can not be proved. If it was, then it was at the age of about 11 weeks or about 2 months after leaving the nest.

The object of the preceding observations was to determine if Nova or the young birds sang full song; but conclusions are only ten-

tative.

The question naturally arises: What was Brownie's object in all of this singing and calling, and why didn't he "do something about it" when he got them all together?

Note: It should have been recorded that I looked for the two youngsters in other places while the three birds were singing and could not find them, thus favoring the probability of one of them having been one of the singers.

8:30 P.M. I was busy most of the day building an extension to the cage to permit of separating Rhody and the magpies. This is about 50 feet from the dormitory tree and Brownie frequently was either seen or heard in his night roost there, sometimes for long periods of time.

At about 4:45 he began calling and singing full song from the old oak and thrasher sounds could be heard all about. I did not stop to look them up until about 5:45, at which time I noted 3 thrashers digging and playing about 50 feet east of me, and another about 10 feet south of them. I approached the group of 3 and suggested worms. 2 birds detached themselves and ran toward me. The first was Bb; the second was Brownie, but he eventually won to the disappointment of Bb who stopped in his tracks and complained sadly. B wanted only 2 or 3 worms, as he was interested in something in the old oak, and when he left Bb came readily and ate out of my hand, but kept looking to see if B would return. The other two birds, probably Nova and Nb, continued digging phlegmatically and Bb rejoined them.

The initial split in the family has, apparently disappeared, and both parents, contrary to precedent, tolerate the presence of the youngsters, not only in their territory, but in their immediate presence. Furthermore B seems actually to call them together, although he ignores them almost completely when they appear. This looks as if he really likes to have them about, knowing that he

can retire at any time to his private apartment in the dormitory tree whenever he needs quiet.

If Greenie were still here, I would predict another nest this year with some confidence. As it is, I shall not be surprised if the birds build again.

Rhody ate three mice today, presented by the Reynolds family establishment, and certainly as much meat besides. As the mice are swallowed head foremost and endwise, their tails seem to tickle his "tonsils" for a few minutes after there is nothing to be seen of them.

The Reynolds pheasant finally walked into the skunk-cat trap and was caught. I heard him struggling violently in it, but strangely enough he calmed down completely when I went there and picked up trap and all. When released at his original home he walked out calmly, with no sign of panic, and began looking for food within 3 feet of the trap.

September 1st.

The usual(at this season) early morning singing.

About 9 A.M. Brownie, who was now calling from the top of the old oak, came down for worms. After this he went to his night roost and sang full song for a short time, then sat on the wind-screen still singing and calling. He then dropped to the ground, ran by me where I was sitting by the magpie cage and climbed the Sparrow-hawk pine. Meanwhile another thrasher had answered his first summons and gone to B's night roost, but finding him not there, and hearing him singing with "everything wide open", followed to the pine. Here B fairly excelled himself and soon had four more thrashers in the same tree, coming from various directions. For a time three thrashers were singing full voice simultaneously from this same tree. B kept up his song (which, now at 9:45, is still ringing out clearly from the same place) and other thrashers came and went, some pausing to sing in an acacia 15 feet away. When I left to make this note, Nova (I think) was sitting about 2 feet below him "bubbling". The curious thing about this is that B apparently pays no attention to the other birds and other kinds of birds, brown towhees and humming

birds for example, seem also attracted by his song. In all this the musical phrase:

is delivered frequently with full power, without losing its melodious character. Clearly B has the magic touch; but why, when he attracts all of these bird, doesn't he "do something about it"?

9:57. Still at it. Going out to see operations.

10:30. B was still on the same perch, but his song had changed, the above phrase being absent. Echo of his voice could be returning from the north, but I was unable to determine the object from which it came. He continued full song until 10:15 when a bird went out on the limb to him and they adjourned to the interior of the tree, whence a confused miscellany of sound proceeded of about the volume of $\frac{1}{2}$ song and less, with occasional louder phrases. At 10:25 three thrashers sailed down from the tree together and lit near the cage, where they were joined by Bb (previously located). They gradually dispersed amongst the oaks and undergrowth near the eastern end of the property, and all was quiet at 10:30.

During this period loud thrasher song came from the north and the south east also, distant birds. There was also soft song in the acacias near the magpie cage while B was singing aloft. Bb came out from there to feed from the hand, but the song continued.

The last group of four birds I believe were: B and Bb, certainly, Nova and Nb, probably. Bb's plumage is now distinctly rough and, curiously, he is now just outside the window fully 100 yards from where he was seen a few minutes ago.

At 4:30 Brownie climbed the old oak and began full song. In a few seconds he was answered from a point nearby to the east. In a few more seconds Bb was seen approaching from the west. I deflected him temporarily from his course by displaying worms, which he came and

took from hand. B shortly gilded down to the ground about 50 feet to the north east of the tree and Bb promptly followed. B went up about 5 feet in a sapling oak and continued full song--an unusually low point for anything but subsong. Two more thrashers came, dug about, then went to B's tree, one of them climbing up and perching just below him. B' then changed to a miniature of the full song that he had just been singing, using the same articulate phrases. This is also new. He lowered his head and began pecking at the twigs below him. The other bird remained quiet for several minutes, looking up at him, then came down and went to digging. B then went off by himself and sat in the open on the ground in the old-man patch on the east side of the glade and sang subsong continuously for about 20 minutes without stirring from his tracks. In the meantime the other three were digging and skylarking under the acacias along the north line near where I sat, the youngsters making up evidently for the play time lost by their having been separated from the beginning. Nova(?) left the group and sailed by me down to B and approached him as if actuated by curiosity only. B ceased his subsong, lowered his head toward the ground, crouched, puffed out his feathers and spread his tail, becoming "stiff all over" and tapped rapidly upon the ground with short, rapid blows in "bursts" of 5 or 6 at a time. Nova watched curiously from about 2 feet away edging about to get a better look at him, but otherwise not responding in any way. Most of the time B was back or side toward Nova, never appearing to look at her directly. He was voicing soft, inarticulate sounds and shifting his feet about without changing position materially. This kept up for several minutes, when one of the youngsters sailed down to join the group and B's antics gradually ceased. This is the first display of this sort witnessed here. The three birds then wandered about amicably in and out of the bushes, digging and mildly chasing each other, then went into the glade. Bb had remained not far from me,

presumably not interested or not seeing what was going on.

By this time an hour and a quarter had elapsed since B first began singing from the old oak. He knew where I was all of this time, but ignored me completely. I had been wondering why he did not come to me, especially when he was all alone subsinging. He evidently had other matters in mind. The episode in the small tree, where he tapped the twigs below him seems to have been a form of display similar to that seen later on the ground, being modified due to the difference in location. It would appear to be a rather one-sided courting affair.

Just before 6, as I left, B again climbed the old oak and called queelick repeatedly, but was not heard to sing. He is now quite sleek in his new plumage, with a feather or two ruffled or missing here and there. (These notes for the same day last year--I have just looked them up--comment upon B's fine appearance after the moult, and my mistaking him for Snooty). (Carrying of ^{soap-root fibre} ~~knigs~~ and apparent nesting activity were commented upon August 30th. last year).

Sept. 2nd.

There were several thrashers singing full song as late as 9 A.M., at which time I went out to see what contribution Brownie was making to the concert. He was in the sparrow-hawk tree again singing loudly about 40 feet above the ground, but when he saw me, contrary to yesterday's behavior, he sailed down at once and came for worms, of which he wanted but few. Almost immediately he was followed from the same tree by Nova(?) and the two ran rapidly down the path toward the east ^{whence} ~~where~~ thrasher talk coming from the trees near the boundary of the property appeared to interest them. There also were other thrashers singing in the distance.

During the day all four of B's family were seen frequently, and at about 1:30 P.M., his whole tribe--wife and two youngsters--were at the oval lawn with him. Nova is now as sleek as B and will come

out into the open and eat out of the feeding stations about 20 feet from me, provided that I do not move. She is bolder than she has been for a couple of months, but she did this same thing on first arrival and then relapsed.

Nova's bird, Nb, is moulting, and has been for some time. He is more ragged than his nest-mate.

Bb detached himself from the group at the lawn to come for worms. Brownie was fairly tolerant of this, after he had taken one or two himself, Bb complaining of the injustice. There was no chasing at all. The young birds left voluntarily, both going up into the patio.

At 5:45 B came to magpie cage then went to his night roost; whether for good, it is too early to say as yet (6:15). He was not heard calling his family together between four and the time of his retirement. At that time Nova was up in the old oak doing the calling. (Scrips and queelicks). B did not respond in any way.

At 6:25 B was evidently settled for the night in the dorm. (Sunset 6:40 P.M.) B beat it by nearly an hour (55 min.). This is unaccountably early. At 6:35 the sun is disappearing behind the Tamalpais ridge.

Sept. 3rd.

B opened the day with song. About 9 his singing post was the pine adjoining the sparrow-hawk pine. Again he flew down to me when he saw me and, after eating went to the dormitory tree by an indirect route.

Nova then began calling queelick from the old oak, keeping it up without change for about 5 minutes. B, in plain sight from where I sat 25 feet away, but not in his night roost, remained silent, seemingly disregarding Nova. In a few minutes he went to his night roost, passing through the glass house. He remained quiet here also for several minutes. Meanwhile Nova had abbreviated her call by running the two syllables together, then changing to khrick (the r scarcely sounded),

then further shortened to a mere aspirate. B began to sing so softly that he could scarcely be heard, then suddenly burst into full song, being answered immediately by Nova also with full song. They sang both alternately and simultaneously for about 5 minutes, but neither approached the other. B finally mounted to the corner of the wind-screen and continued his song, then sailed over me, just missing the top of my head, and ran off to the oaks at the eastern end of the property. Nova continued her song for perhaps a half minute longer and then was seen running after Brownie, down the path.

Nova is a singer. song differs Thus Nova is definitely proved to be ^a singer after all. However, her song is harsher than B's with a peculiar, drawn-out phrase somewhat "rattling" in character.

During the past few days she and B have been seen together often.

Pat in full song. Pat, Brownie's and Greenie's sole identifiable offspring, now at the age of 5½ months, has finished his moult and seems a fixture at the Reynolds home. He has been in full song for some time, Dr. Reynolds reports and is on good terms with the household. When he is about to return to the aviary he usually announces his intention with loud scrips .

Is a good subsinger. Nb has a fine continuous half-song, well exhibited this afternoon while digging amongst the azaleas just outside the open window where I was typing. I had to look at him to see if Brownie was the performer.

Harmony *no longer.* Bb still complains when B takes worms from me in his presence, but B ignores him. There is no chasing of the young birds. How long is this going to last?

much thrasher song in the hills. Thrashers are now vocal all through the hills to the east. I have never known them so numerous. B can not be responsible for all this.

Youngsters not respecting lawn agreement. The youngsters here apparently have not heard of the gentleman's agreement respecting the oval lawn, and are beginning to treat it rather roughly, though not actually digging up the grass.

Sept. 4th.

Much singing. Frequent full song by Brownie at intervals throughout the day, beginning in the early morning.

His family. He and all his family were about the place most of the time; Nova responded to his calls several times.

Alaplays. B put on one of his new type displays just outside this window, in which he had Nova and Nb (?) as interested spectators, following him about on the floor of the terrace and seeming to be actuated only by curiosity. B appeared to disregard their presence, and as before, puffed up and stalked about slowly and woodenly, pecking the stone floor and making soft, inarticulate sounds.

He again patronized his night roost several times during the day.

Sept. 5th.

Early song. The day was again opened by nearby and distant thrasher full song. At about 10:15, B, who had been singing a great deal, went to the dormitory tree and was shortly followed by Nova. After a few minutes, they reappeared, sitting together on the wind screen. B came to me for worms, Nova wandered about and then returned to the dorm and went up behind the screen all alone. The first time this has been noted. It looks like a nesting sign. Previous to this Nova had again shown that she is a singer.

Alaplays full song 10 feet from visitor. About 10:45 a visitor was standing by the dormitory tree and B broke into full song from his night roost. He then came out and sat on the screen and sang about 10 feet from us, being answered by Nova in the old oak. His object appeared to be to get his wife to come to him, but she was shy of us.

Band 75 together. A few minutes afterward he and Bb came to the oval lawn together. Curious, this continued tolerance of this brood.

New feathers on false wings. While he is very smooth and sleek, I just noticed that he has two pin-feathers just breaking from their sheathes on each of his "false wings".

Sept. 6th.

Much singing. 9:30 A.M. Brownie is singing enthusiastically from one of the pines; he has been at it almost continuously since first heard this morning early.

Nova and B together. Nova is with or near him most of the time, more or less vocal. At times she answers him with her full song from an adjoining tree. B's song. For the present, at least, it is not nearly so good as B's. Both Nest signs. of them have gone repeatedly into the dormitory tree, behind the wind screen, and B has shaken twigs at various points there.

Other thrashers singing. Other thrashers are to be heard in the distance; so the present excitement is not confined to my birds. If they should nest again, it would seem that it may be a characteristic of thrashers in general to nest again late in the summer.

Bb's court. Bb is looking pretty shabby about the body and has new pin-feather showing on his head. He looks small and frail when he comes to me for worms and spends much time in the garden near the house. (He is here now catching bees on an azalea in full bloom by the window) Nb. Nb has not been seen this morning, but was about yesterday.

Thrasher under sprinkler. 10:05 One of the thrashers, probably Bb, but I cannot tell which because he is so wet, is enjoying himself hugely in the spray of the lawn sprinkler.

Rhody getting spoiled. Rhody is being spoiled by his friends with mice and sparrows. He had two fine mice yesterday and this morning, when offered meat, merely turned it over with his bill and cast sheep's eyes at me through his long lashes. There is still no sign of his ever having rejected indigestible portions of the animals eaten, and it appears that there is no such portion for road-runners.

B takes a long rest. By 11 o'clock, all this feverish activity palled on Brownie, and by stealing up quietly, I found him with closed eyes, resting comfortably in his night roost, oblivious to the affairs of the outside world.

B wakes up. At 12 o'clock he was still there. This time, when he saw me, he came down about a foot at once and began picking loose fibres and small twigs that had lodged in crotches of the tree. When

Makes bluff at nest building.

I held up, at arms length, a worm as an offering he came down still further, very careful about his footing, though he slipped once or twice, and took it eagerly. After he had had several, further supply was withheld and he climbed up higher, making a frantic show of nest-building activity at such a rate, that, if continued, a completed nest should have resulted in a few minutes. However, as I have seen this sort of thing before, I left knowing that the impulse would fade out shortly, in all probability. Nevertheless, his behavior parallels former activities that have resulted in a batch of youngsters. He may keep this sort of thing up for months, or without result me may build a nest anytime now.

2 P.M. I heard a fine, continuous undersong coming from the terrace by the dining room window, while I was sitting by the oval lawn and suspected it to be Nb, as the others were reasonably well accounted for. So as not to disturb him I went up through the basement to reach a window giving upon the terrace and at about the same level. It was Nb. He saw me, or as much as was visible to him when I showed but one eye. His reaction was of mingled timidity and curiosity. He moved about to get peeps from different directions at this strange phenomenon emerging from the depths, but did not run away, so I left him to resume his song. His song is as good as any adult $\frac{1}{2}$ song, except that it has fewer imitations of other birds, or, rather none at all.

At close range he is easily distinguishable from Bb. Unlike the latter, his tail is moulting, the back of his neck is rough (It has been for some time) and he appears a little larger and more mature

Like Pat, he is a great eater of seeds and chicken feed.

Sept. 7th.

1:55 P.M. Up to about noon there was frequent full song by Brownie. He was definitely placed as the singer about 8 A.M., although the song began much earlier. At that time he had a congregation of thrashers, unidentified, in the sparrow-hawk pine. From

that time until about 11:50, I should say his time was about equally divided amongst full song, sitting in his night roost, foraging for food and sub-song. Nova was frequently with him and all the family placed.

Peculiar Thrasher Music. - At about 11:50 I was attracted by peculiar thrasher music, confused in character, coming from the s-h tree. I went there and sat down. Brownie and Nova were both singing at the same time, but different "tunes". Brownie's song contained few of the phrases characteristic of his music. Nova's song was not at all that easily recognized as thrasher-produced, and, at the same time, entirely different from B's. Nova's was higher pitched, as a rule than B's, less flowing and harsher. Both were more staccato than commonly heard. Whenever a pause came, Nova sometimes continued alone for a few seconds. B always lead off, N promptly joining every time without fail (I think).

Duration. They were sitting apart and there was no sign of courting. After about 10 minutes B moved to the adjoining tree, Nova remained where she was, but the duet continued with pauses of only a matter of seconds until 1:45. At that time, after having lunch at a point where I could observe the continuity of the performance, out of sight but not out of hearing, I went to see what would develop from the affair; but on the way to the tree I met B chasing Bb (who had been attracted by the song about 40 minutes before, and who had been quietly digging about underneath it all this time). It seemed to be a real chase as Bb was complaining and B seemed to have blood in his eye. As they went by me I spoke sharply to B and he stopped in his tracks and faced me. Naturally it was the prospect of food that halted him, but when I upbraided him for his heartlessness, he had a curious air of listening and although he resumed the chase (Bb had stopped too) I stopped him each time and he finally abandoned it and went off, allowing Bb to come to me for worms.

Conclusion. I am inclined to think that the duet was a manifestation of court-

ship in some form, and that Bb would not have been chased if he had kept away. Again the chasing carries with it a suggestion, that B has a new family in mind and getting rid of former broods is a preliminary step. (There is a fine sub-song just outside the window..... It is Nb, as determined by his tail and neck, digging and singing happily. I have recorded before that the sound of this machine ^{song} has stimulated other young birds to song. Nb's digging is fully professional in quality. He is about 18 feet away).

There was something about Nova's song that suggested the opening notes of the Bullock Oriole and phrases resembling the California linnet more than a little. (On p. 422, Sept. 27, '32, I find a similar phrase recorded for Greenie --also a female. These two records are only ones.

A kangaroo rat was caught in the drain pipe from the drinking and bathing basin of the new cage extension. It was offered to Rhody, but he would have nothing to do with, merely glancing at it sidewise and passing it by. It was put aside for a later occasion.

Sept. 8th.

The usual (at present) loud thrasher singing on the part of several performers opened the day. B was singing off to the south east about 8 o'clock. About 10 minutes later he was digging in the oval lawn, and was so cheeky, that when I went out there to remonstrate, he worked his way toward me slowly, still digging, until he was conducting his operation practically under my nose. He was "rewarded" for his efforts with a worm or two and desisted. A few minutes later he was getting his congregation together in the sparrow-hawk pine.

About 9 A.M. neighbors children brought a live gopher snake, which when measured, was found to be a little over 15 inches long-- a youngster--but already able to imitate the head-form of a venomous snake, and a fierce striker. (B now in full song someplace behind me).

Rhody had been offered the rat again this morning and it was still untouched in the cage, as was also the meat placed there. When he was shown the snake he was immediately interested and when the snake struck at him, he neatly caught him by the head and snapped him around

like a whip, whirling him over his head and ^{it}slapping him on the ground ^{it}hard. This lasted for a few seconds and then the snake was released, still full of fight. Rhody made no effort to avoid his ^{its}blows, relying upon his own quickness of movement to enable him to ^{it}seize him by the head every time a blow was struck. He did not try to approach the snake from the rear or from the side at all, but always approached him head on, never missing his hold. He did not appear excited and the snake soon showed the effect of the treatment he was receiving, so Rhody frequently laid him down almost casually and rested. No attempt was made to kill the snake by striking him with the point of the bill, nor was any but the head-hold used until resistance ceased. Then, two or three times, he was taken by the middle and ^{it}slammed about on the ground. When the snake was no longer moving it was swallowed headfirst without difficulty. The whole affair lasted perhaps 3 or 4 minutes. (The cage is 9 feet square, but in the early morning, the portion where the execution took place is in shadow and no motion picture was taken, unfortunately).

Snake reversal: From the two snake episodes involving the road-runner, it appears as food only? that the bird's interest in these reptiles centers upon their availability as food and that he is able to discriminate between swallowable and non-swallowable sizes. His reliance upon his own swiftness of motion appears complete and justifiable and it will also be noted that, in contrast to the thrasher, his attack is directed at the head instead of at the tail.

B's moult and behavior: Bb has a band of pin-feathers extending from the base of the bill to the back of the head, and a patch of them where his white throat-patch should be. He is rough all over the body.

He knows what the worm box is for as well as his father, but has not yet decided whether my fingers are good to eat or not.

As he is still here, B's chase of him may not have been an ~~eff~~ effort at expulsion. Possibly he only wanted to get him away from

that particular locality where he was singing.

Snake alone 12:15 P.M. Rhody's appetite was not appeased by eating the snake.
 not enough for Rhody. Within a short time he began investigating other objects of possible food value, but ignored the rat and the meat. About 11:00 he occasionally looked at both, and later, went so far as to touch them lightly with the tip of his bill. A few minutes ago, when I went out there, he came to the wire and plainly showed interest in my doings, watching me closely. I put in some sun-flower seeds as an experiment, as it had been noted that he was picking up small objects. (He has a supply of gravel). He investigated the seeds, picking one up, but dropping it to pick up the meat, now well scorched on the outside by the sun. He ran off with this and beat it upon the ground as he did the snake, eating the pieces that broke off, but which formed but a small portion of the whole.

A quiet period. During the rest of the afternoon it was unusually quiet, little being seen or heard of the thrashers.

Sept. 9th.

A quiet morning. Only one short burst of early song was heard and not even distant thrasher music. Whatever has come upon the thrashers seems to have affected all alike.

Singing begins(?) Up until 9:30 A.M. Bb was the only one of the tribe seen here, (working on the oval lawn at 7). At 9:30 Brownie and Bb were seen together and I had a fleeting glimpse of what might have been a chase, but as B came for worms at once and Bb halted to see if there might be a chance for him too, and they both faded away in opposite directions, nothing definite could be determined.

Still quiet. Everything has been quiet since that single burst before 6 except for one very short period of scripping from the old oak by Brownie(?). After a period of so much singing it seems strange to have it so quiet.

S. P. 1911 The Season of Great Peace appears to be on the wane. Brownie

is bearing down upon Bb (Nb not see this morning--now 12:30 P.M.) and has been seen to chase Bb four times determinedly, two of the pursuits beginning at my feet. Bb has shaken off his pursuer each time, but is plainly nervous, even when B is not in sight. Each time he comes back to the oval lawn--a pathetic little figure in his loneliness. Man seems to be the only friend that he now has.

2:22 P.M. Immediately following is a record beginning about 1 P.M. at which time Bb came to me for worms at the fig tree (now ripening its third crop for the season). Hearing B near at hand in the glade, I went there and he came out for his share and for the next three-quarters of an hour, more or less, sang continuously ranging from half to three-quarters song, at distances varying from 3 to 10 feet from me. This was one of his masterly performances in which appeared nearly all of his imitations, together with a bewildering variety of his own compositions. The remarkable features of this performance are two: viz: variety of musical phrases and variety of quality of tone (timbre). The former is understandable, but it is difficult to comprehend --without knowledge of the anatomy of his vocal organs-- possibly also with that knowledge--how ~~it is able~~ ^{he is able} to produce such striking contrasts in tone qualities. Within my limited range of experience, in these two respects Brownie surpasses all other birds immeasurably. In these respects the mocking-bird is far outclassed.

The song ended by his suddenly departing in the direction of the oval lawn. The impression given ^{was} that he had just remembered that he had not paid his respects to Bb for some time. I went there and discovered Bb first. B could not see him from where he was eating at the feeding station. However, he soon placed him and began a rather mild pursuit during which Bb for a few moments took refuge at my feet. The chase did not depart from the immediate vicinity and wound up by both birds disappearing in the surrounding shrubbery. Search revealed Brownie first, sitting with closed eyes in a Fremontia. He

not dis-
urbed by taunts

responded to my taunts of old age and inability to catch the youngster on that account, by opening and closing his eyes with sleepy

3000 after
Bb.

gurgles. However, he saw Bb again before I did and started toward him

conditions
none.

Though they were only about six feet away I had to go go about 50

yards to get on the lawn side of the bushes where they were. On

arrival B was found sitting quietly on the edge of the grass doing

nothing and Bb about 6 feet from him hopping about cheerfully in

the bushes. B soon began his undersong again and from Bb's direction

came an undersong of similar volume and quality, adult in character.

Neither contained imitations, and as I left, B was just settling down

to another period of song.

still here.

At 2:55 a casual glance shows Bb eating at the station at the oval lawn and B not heard or seen. The chase, then, has ended in no removal of Bb from the place where he began.

3' at 2:55 -

The impression gained of B's present policy is that he is relying on making it mildly annoying to Bb to remain in his (B's) immediate neighborhood, trusting to time to effect a final separation rather than to force the issue. There is a question also, whether B by physical means alone, without the aid of Nova, could accomplish this result. There is no evidence that he has such aid, at least in respect to Bb. What Nova and Nb are doing is not known.

Sept. 10th.

starts nest?

12:55 P.M. At this moment Brownie seems to think that he is building a nest in his night roost, but only time will show how serious are his intentions. From time to time he bursts into full song, as if calling to his mate to lend a hand.

Early song was heard mostly before 6 and the morning was relatively quiet, though B sang occasionally and whistled his musical phrase recorded for the first time on p.474. This phrase so human in quality that it is startling.

has platform.

1:10. Brownie actually has a slight platform constructed at his

night roost, consisting of perhaps 15 or 20 twigs, but it is strong enough for him to lie down on. He was lying on it yesterday, but at that time, although I saw signs of it, I assumed that the twigs were merely deadwood. Closer inspection shows that they have been placed there. The platform is about one foot above the location of nest 5 of last year.

~~2 nests platform~~ 9:00 P.M. On several occasions during the rest of the afternoon ~~during day and~~ night.

B was seen or heard at this point, and when his bed-time came, went up and occupied the platform.

~~2 nests B's~~ Curiously, a few minutes before this, Bb was seen wandering about ~~alternate roost.~~ in the branches of the trees as if seeking his resting place for the night, and to my surprise, he selected the identical branch in the acacia which Brownie uses as an alternative roost.

~~2 nests~~ Nova (presumably from Brownie's interest in that direction) could be heard scripping in the vicinity of the old oak. He listened acutely and for a few moments seemed disposed to go and investigate, but was evidently convinced that everything was in proper order, so did not.

~~2 nests~~ No chasing of Bb was seen during the day, although he and B were often not far apart and within plain view of each other.

~~2 nests~~ Nb? Nb was not certainly seen during the day, but there were signs of his being more or less with Nova. (Sounds).

~~2 nests B's~~ Nova responded to B's calls from the dormitory tree more than once ~~calls.~~ closely but would not approach if I was near at the time.

~~2 nests~~ Pat still goes in and out of the Reynolds aviary perfectly at home ~~Neo less so.~~ Neo is seen less often.

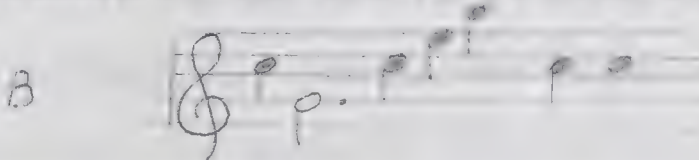
~~2 nests~~ Brownie, almost certainly, though I was not there to see it, has ~~goes into~~ also been in the aviary, and taken worms from the hand of a member of ~~Reynolds aviary.~~ in the household while there.

Sept. 11th.

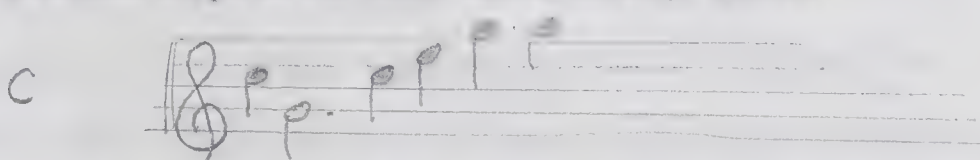
The day opened overcast, but with much full song by B and others. On my way to the glade to locate the birds at 9 A.M. I passed under a tree in which sat Nova scripping. B came out of the bushes and sat for a long time, occasionally making soft gurglings. I tried to make him sing by crude sounds without success. When he climbed to the topmost snag of the old oak he began with calls (probably for Nova) and swung into full song. By whistling, what sounded to me at least, a reasonable imitation of his whistled:  (p.474) repeatedly I hoped to get him to take it up, also without success. However, when he changed his location to the dormitory tree behind the screen, this call suddenly rang out detached from all other sounds. As it brought no results, he mounted the screen facing me and repeated it several times, turning his head to look in all directions, I suppose for Nova. He got no response and retired to sit on his platform.

There seems little doubt that, on this occasion at least, his singing, and particularly the musical phrase referred to, had the purpose back of it of attracting other birds, presumably Nova.

He introduced two variations this time; the first one contained a repetition of the the first note at the end, thus:



The second repeated the last note, thus:



The intervals here are believed to be correct. The lengths of the notes and the technical correctness of the representation are not guaranteed!

Shortly after this B was at the oval lawn, very talkative, and was there joined by Nova, herself, who shows a liking for pyracantha berries. She behaved in a quite civilized manner, but at her tamest she is not so tame as Greenie at her wildest.

*See p. 170 for
analysis of
overlapped
combination which
follows*

There appears to be an increasing disposition on the part of B&N to keep in touch with each other now, and B's talk on the lawn seemed to be for the purpose of maintaining contact, for whenever N wandered out of sight, B looked her up, although, strangely enough, aside from his initial greeting, he gave the appearance of ignoring her presence entirely--not looking at her at all.

10:55 A.M. B, wandering about singing half song, has given two more variations on the theme, in one of which he sings the first three notes only, and in the other, the first four. *D and E*

During the afternoon Brownie was often seen on his platform which has not increased in size. He seems to be trying to interest Nova in it.

Sept 11th.

There was plenty of full song in the early morning hours, coming from different directions. At least two thrashers were concerned.

About 8:30 A.M. Brownie was sitting quietly on his platform.

About 9:30 I happened upon a chase in the orchard, B, of course, being the chaser. It was all too swift for me to identify the other bird. It calmed down and B came to me for worms and then began hunting through the bushes, no doubt for his victim. This seemed to indicate that the pursuit had not gone so far as to drive the other bird away, so while B hunted in the vicinity of the glade, I went in the opposite direction and found two thrashers at the oval lawn. One of them, Bb, came to me at once, but with fearful glances into the bushes and elsewhere. The other disappeared before I could have a good look, but I think it was Nb. After feeding Bb, I thought it probable that B had decided that there were no other thrashers in the immediate vicinity of his "nest" and had gone there, more or less satisfied with the status quo. The surmise (as to his location) proved correct.

Here remained there for a long time singing, calling, doing nothing and fussing with the twigs. The platform, if anything, looks smaller.

About 11 o'clock he had a long range singing contest with thrashers due east at the north west corner of the Robinson place. For several minutes he sang from the old oak, then moved to the top of an isolated acacia tree about midway between the two points. The distant birds continued their singing and B frequently joined in from his perch. In ten minutes or so the other birds came straggling over one at a time to Brownie's tree, then gradually scattered, eventually going back to the Robinsons' leaving B alone. However, he joined them in the end, and up till 4:30 P.M. had not returned here, but the singing did not stop, except for relative short periods. Bb was the only thrasher I could find here during this time. He did not join the convention at all. At the Reynolds's, their birds had also disappeared.

4:55 P.M. I find that Rhody, if not too hungry, will play with a live lizard as a cat plays with a mouse. A lizard was given him about 4. He put it on the ground (the lizard "playing possum") and walked about it in a circle glancing at it sidewise, and occasionally picking it up by the tail or a foot to stimulate it into activity. then laying it down again and watching it. Whenever the lizard thought it had a chance, it bolted, but Rhody was after it each time like a flash and never let it get far away. This procedure was enacted 10 times in about a half hour, Rhody finally swallowing his prey without having apparently injured it seriously; although, its tail had come off in the meantime and wriggled about on the ground. Rhody was having a splendid time, posing, pretending to be indifferent and flirting his wings in a horizontal plane--a peculiar gesture that he makes when interested.

At 5:35 Brownie and Nova (later identified) were seen running

in the open street rapidly toward home; so they both were over there. At the entrance they separated, Nova to the oaks at the east end and B to the glade, where he immediately began digging. In a few minutes he started up the old oak, but instead of going to the top and singing loudly as expected, he went up only about 7 feet and sat in a dense clump of foliage and sang very softly. This, however, brought Nova (notwithstanding my nearness) who joined him, whereupon he began shaking the twigs with his bill and stopped singing. They remained quietly within a foot or two of each other for several minutes and then Nova climbed up higher and began calling. (5:50) B came down and went to the dormitory tree, but it was not until 6:11 that he reached his platform, as there was a lot of preening to be done. Nova continued to call queelick. I went away and returned by a roundabout route to watch developments. Shortly Nova ceased calling, dropped to the ground and ran to the dormitory tree--the first instance of this bed-time behavior by her. On account of her timidity, I did not follow, leaving them free to work out any plans they might have. This was early retiring. (Sunset 6:24, temp. at sunset 63, calm and clear).

Sept. 13th.

Not much time to watch the birds today, but there was frequent full song as B wandered about.

Twice when I thought B was not near and I was feeding Bb, he appeared. Bb decamped both times with only a threat from his parent.

Brownie continued to use his platform and seemed to be trying to get Nova to join him there.

The thrashers were late in going to bed, but Bb, much to my surprise, was in the dormitory tree at about his regular bed-time. I watched, expecting B to come and eject him, but he left voluntarily after remaining several minutes longer. It was beginning to get dark (I had no watch with me) and it was difficult to follow movements within the trees and identify individual birds. B was not in

his alternative roost in the acacia--my first thought was that he and Bb might have exchanged places. Brownie was unaccountably late. However, the mystery was solved when he and Nova finally appeared in the road near me, much interested in each other. I was unable on account of darkness to trace them to their final destinations, but, it was seen that a thrasher, possibly Bb, had the acacia roost.

Sept. 14th.

There was nearby early morning song, but by 7 A.M. it had shifted off to the south. A little later I thought I heard B's undersong about 25 feet from me in the shrubbery at the oval lawn. By shifting about I hoped to get his "parallax". To my surprise, I found that the direction from which the sound came remained approximately constant--from the south. The singer was finally located, by going south outside the property, in a tree located about 400 yards from the point where I first heard the song, as determined by map. B was not to be found here, but I think it was he, for some time after the song ceased he was here again with Nova and another bird. He seemed to be trying to "round up" Nova and get her to go to the dormitory tree. An hour or so later she was there with him, leaving as I approached, but B remained on the platform singing full song for several minutes more. He introduced his "A" song (p. 474), also the C variation (p. 765) and a fifth variation, "F" not before recorded, in which the last three notes of A only were used.

9:30 P.M. The same peculiar rise in temperature after sunset noticed last year about this time. (See notes). Temp. at sunset 72, temp. now 74. No perceptible wind at either time.

B in the acacia. Cooler(?). Bb not located. Nb not certainly seen today, though I am not sure that I could identify him now.

Sept. 15th.

A riot of song in the early morning here, B then going over to the Robinson place to sing there for a long time.

On his return he again invited his mate (prospective or Nova?) to view his platform, and frequently occupied it during the day.

No chasing of Bb was seen, nor was Nb to be found about the place. B sang full song fairly often, also undersong. Other thrashers also singing in the distance.

This seems to be a season of song for thrashers in general.

Sept. 16th.

Much the same as yesterday in the local thrasher world.

Bb was chased by B about 5 P.M., but exactly at sunset occupied B's alternate perch in the acacia.

B went up to his platform just as the sun's disk was bisected by the western horizon.

Rhody delights to play with lizards before eating them. He was given another one today and was even more reckless in his treatment of it, taking long chances by giving it many opportunities to escape. He even placed the lizard at one time about 6 inches from the wire, where a sudden dash might mean freedom, and retired to a distance of about 2 feet, pretending not to see it. I really thought he had overdone the matter, but when the lizard decided to quit playing possum and bolted for the wire, there was a sudden blur followed instantly by a clear picture of Rhody standing calmly with the lizard in his bill. He is so quick in his action that the eye cannot actually follow the movement of his head as he strikes. Lizards are not slow by any means, either. Just before this one of its dashes, and it seems to have been cleverly conceived, was up Rhody's leg. No doubt a surprise for the bird; but he caught it just the same as it was about to run up into his feathers.

Sept. 17th.

Another day of frequent full song, beginning here, going east and then returning. Practically the whole forenoon Brownie sang and called; many times from his platform. I was working near there on

Another

a small annex to the road-runner cage (He is now separated from the magpies) in which I can set up a camera and tripod to get "close-ups" of Rhody. Brownie, therefore was often seen and heard.

On his return from the east he sat in the top of the old oak as his singing station. He came to me at the cage for a worm--which was unexpected--as he is much preoccupied with other matters. He then carried a twig to the platform. While I was unable to watch him much, the song was largely made up of phrases and character of tone used while courting, and Nova (presumably) visited him there behind the screen. His present behavior plainly proclaims --I suppose to Nova, but it may be to all females--that he has a fine beginning of a nest at a place that he has proved by past experience to be excellent and that she, or they, should come and have a look at it! He does get visitors (or a visitor) too, but one or both leave shortly.

Bb is still here and comes to me for worms, but is nervous; especially about what may be concealed in the surrounding bushes. He is having a pretty thorough moult and looks most untidy, though his head and throat are looking fairly decent. He wanders about alone.

Rhody.

This creature is becoming fairly tame. Although his domain was noisy with saws, hammers, etc., he was not in the least frightened. In fact he hung about as close to the work as he could get without having something fall on him. When the job was completed he came through the first available connecting opening to inspect it, and when I went in and sat down (it is only 3 feet square) he came in just the same.

I set up a motion picture camera there and showed Rhody a 14 inch, live gopher snake which I held in my hand. He fairly begged for it and I got a picture of him about 2 feet away looking at it longingly. When I released it, he had it in a flash. Pictures were obtained of his actions in killing and swallowing it. This snake would not strike.

Shortly after this episode, Rhody came and stood about 2 feet from my face and preened. He pulled out 15 body feathers while I watched and stripped off the filmy sheathes of new feathers by drawing them t between the upper and lower mandibles. He also rubbed himself with o oil from his preen gland.

The bottoms of his toes are so well padded that his claws do not touch the floor when he stands on it. One rear toe on each foot foot curves upward, that is, the concave side of the curve is on the upper side. Both rear toes^{on each foot} look weak, and probably are.

His eyes are very interesting. As recorded, they are brown and have lashes on the upper lids. They are capable of considerable movement, so that the bird can shift his gaze, and habitually does, over a fairly large field without moving his head.

The pupil is surrounded by a narrow circle of brassy yellow. It appears to be slightly eccentric to the pupil, but this aspect may be due to the fact that the ring is somewhat narrower in front. This ring expands and contracts with the pupil, but I can not see that its width changes, though I have suspected that it may be a little wider with contracted pupil.

The pupil normally appears black, but when the bird's head is in the shadow and the surroundings are brilliantly illuminated by the sun, they are a coppery red. I suppose this is his "eye-shine". The colors above mentioned have not been checked with standard charts.

The upper lid does not appear to be capable of voluntary movement, is as the case with the thrashers and the flickers, but when the eyes are rolled downward, it "follows".

Normally the orbit is practically circular, but the bird frequently "narrows" its eyes, so that it is not always circular. The eyes also, have slight corners, imparting a somewhat human character.

Again, some of the "white" of the eye shows beyond the iris,

although it is not really white, front and rear.

Sept. 18th.

9:15 A.M. Brownie is at his platform using all his vocal powers of pursasion to induce Nova to take more interest in the place. She is flitting about in the trees and bushes nearby and making occasional short visits behind the screen. There is much talk in soft tones, frequent snatches of full song and shaking of branches.

B opened the day with song here, then went to the Robinson place where he was, it must be admitted, pretty noisy at times with his fellows.

When he is out on the rim of his territory his song is more assertive and harsher, I am convinced, than when he is here. Even Julio has noticed this without suggestion from me. The difference appears to be real, even allowing for the fact, that at a distance, the louder tones are the ones most readily heard. I have thought for a considerable time that this is a type song which might be tentatively designated as "border song".

By 8:20 he was back, in the act of carrying a sheaf of soap-root to his platform, entirely out of logical sequence from structural considerations alone, if this is a real nesting operation, although not unprecedented. Such behavior often precedes serious nest-building and seems to be a sort of unco~~r~~ordinated reflex.

During the rest of the day, the platform was occupied by B at times and he continued his tactics of inviting his mate with partial success.

At sunset he made for the dormitory tree, considered the matter for a few minutes at the base of the tree (weather--no wind) and decided in favor of the acacia. I waited to see if Bb would be ejected from the tree, but he was not there.

Bb was, once or twice earlier in the day, threatened by B and complained about it, but moved off without being pursued.

It is impossible to get all the mice, sparrows, lizards and snakes that this bird can eat, so his staple diet is necessarily meat, although he does not take it very happily. He often will allow it to remain untouched for hours, but, rather curiously, he will frequently pick up and eat a piece which he has previously refused if I touch it with a finger. Sometimes also he will eat such a piece when it is pointed out to him, notwithstanding that it has been in plain sight for a long time.

While he usually wipes his bill after a meal, it is especially noticeable, in the case of raw meat, that he is particularly thorough in this act, as if meat were distasteful and he wished to remove all possible traces.

Sept. 19th.

As usual, now, there was much full song by Brownie, wandering from place to place.

About 8:15 he was seen stirring the twigs in his platform.

About 10:30 he was in the patio. He was given worms and I then went to the dorm to see if he would come there, as he does after being fed when his intentions are serious. Within a few minutes, sure enough, he came and fussed with the structure. This is taken to indicate that he really wants to rear another brood, and that whether he does will probably depend largely upon his mate's receptivity to the plan.

During the rest of the day Brownie was often sitting on his platform, sometimes singing a very soft continuous under-song, at other times perfectly silent for many minutes in succession. Again he would burst out in loud musical phrases--doubtless intended as calls.

Bb was given worms from the hand a couple of times, but he watches the bushes keenly and is ready to bolt on the slightest provocation. Brownie's influence, no doubt.

Sept. 20th.

The usual early morning full song and calls.

About 8:30 A.M. the duck-like flutings first noted on ~~we~~ were heard issuing from amongst the rhododendrons near the tool house. Brownie was soon seen and came for worms, continuing to make this call as he sat on my hand. He was being answered in exactly the same phrases from an oak and it was seen that Nova(?) at any rate another adult, was sitting in plain view about 20 feet away watching the performance. A conversation between B and Greenie was noted last year which, like this one, contained no other theme. I am not certain now, in my identification of Nova at all times, and the thought occurs that it might possibly have been another bird, even Greenie.

When B had finished he ran to the dormitory tree and was followed by this other bird promptly.

Reference to last year's notes at this same period will show that happenings in the dormitory tree now are paralleling closely, both in kind and date, those of last year which finally resulted in the October-November brood. That nest last year was No. 5, two being failures. If one is built this year, it will be NO. 4 for this year, one being a failure. This would make it look as if Brownie plans to have three broods per year.

~~Checking~~ ~~pitch~~ In looking over last year's notes of Sept.-Oct I found where I had endeavored to check my recollection of the pitch C3. I tried it again just now and found that I was between C3 and C3#, there being a slight beat with either.

About 11:30 Brownie was chasing Bb through the upper branches of the trees, but being easily avoided. Bb scolded and kept about 10 feet off, stopping when B stopped and watching him in no friendly manner. If B would only let him alone, he would be just as tame.

About 11:45 B was actually making additions to his platform and Nova was scripping from the old oak. It looks like a serious effort at another nesting cycle.

Sept. 21st.

There was practically no early morning full song, but isolated calls and talk. I took this change as an indication that Brownie was concentrating on his nest and would be found there, so:

At 7:50 A.M. I went directly to the dormitory tree and found him there on his nest working quietly. While I watched he came down for another twig, ignoring me completely.

At 9 A.M. another visit disclosed no signs of B, but as I was about to leave, he appeared with a twig in his bill, climbed the tree, passed through the glass house (like old times) and placed it carefully in his nest--for his platform is undoubtedly intended as a sub-structure for a nest.

B's preoccupation may act to extend Bb's residence here. On my return to the house, Bb, at the oval lawn, ran about 75 feet to reach me in the upper garden, and ate worms contentedly from the box. When he thought they were all gone he turned his attention to my fingers. During this period he showed no nervousness as to what might be concealed in the surrounding shrubbery--perhaps an indication that B had not forced his attentions on him for some hours.

Sept. 22nd.

Very little early morning song to be heard either here or from a distance, principally isolated calls.

Brownie worked spasmodically at his nest during the day--principally in the morning--and sat in it often. Nova occasionally visited him there. There is little observable progress on the structure.

Sparrow-hawk
with linnet.

Dr. Reynolds and I saw a sparrow-hawk in the top of the old oak eating something. On approaching, it flew and dropped its prey, which proved to be a male linnet--headless. The hawk, a female, together with its mate, circled about the tree several times as if considering a search for the linnet.

Rhody and
Nova.

The dead bird was offered to Rhody, but he refused it, and though it was left in the cage, rejected it entirely.

Took colored motion pictures of Rhody, who proved to be a patient sitter. Distances from $2\frac{1}{2}$ feet to 10 feet. Variable light conditions, 50 feet of film. Opening $B\frac{1}{2}$ to $B\frac{3}{4}$.

Sept. 23rd.

Little early morning song.

Brownie and Nova were both interested in the nest about 9 A.M.

Rhody released. At noon Rhody was allowed to walk out of the door of his cage, which he did without evidence of excitement. For the next half hour he stood looking through the wire fence at the scenery below him to the north. He then began a deliberate journey to the west along the fence and, in an hour and a quarter, had covered about 200 feet, only, since most of his time was spent in apparent contemplation of the view and trying to reach some conclusion as to what things were and what, if anything, should be done about them. He showed no fear of me whatever and would allow me to approach as close to him as when he was in the cage. When I dug in the ground with a twig, he came and investigated the whole, while I was digging, to see what prospects were.

As before.

The spotted towhees complained about his presence under a bush in which they were sitting. I discovered him there, after a 15 minute absence, unexpectedly right at my feet. He had evidently marked my approach without concern. The fence seemed to be regarded as an extension of the cage, and at 2:15 he slipped under it and went into the thicket to the west of the house. At no time did he appear to be in haste or show fear.

7:00 P.M. Rhody was not seen again during the afternoon.

Sept. 24th.

Rhody

12:15 P.M. Rhody has not been seen about the place.

Nb gone

Nb has not been seen for several days and seems no longer to make this place headquarters.

Bb

Bb has had undisputed occupancy of the oval lawn and the surrounding shrubbery all morning.

Brownie
ain talks.

Brownie has sung little, but has sat on the nest often, although not working. He has commenced to talk again while on my knee.

Nova

Nova has appeared occasionally in response to B's calls and joined him at the nest for short periods.

(Temp. 58, threatening rain).

At 2:30 Brownie ran out on to the oval lawn, saw Bb and made for him at once. Bb avoided him without much trouble but scolded about the affair. B managed to cause his disappearance from the lawn, but he came back as soon as his parent left.

During the rest of the day B used the nest for thinking purposes, only, from all appearances. It is growing slightly and B does not stay away from it very long.

Sept. 25th.

Before 7 A.M. there was some singing and calling by B, presumably for the purpose of summoning his mate.

At 7:30 both were at the nest, but Nova decamped as soon as I approached, passing through the glass house as a convenient highway. B craned his neck over the edge of the nest, then came down for a couple of worms and some soft food, but the creative urge was too strong at the moment and he soon began picking up twigs and placing them.

At 9 I had just finished a tour about the grounds to see if Rhody might be present, without results, when I glanced toward the cage. He was sitting inside on his favorite perch watching me! He had eaten none of the food left there for him, and when I offered him meat, he came and looked at it, but would not touch it. A few minutes later he was out walking around the grounds.

While the original intention was to release him and see if he could be kept in the vicinity by keeping food out for him, this action

was advanced somewhat by his continued refusal of meat and sparrows, both alive and dead. It was found impossible to keep him supplied with mice, lizards and snakes. His reasons for now rejecting food formerly accepted freely is not clear, but it has been noted that the consistency of his droppings changes immediately when he has lizards, etc., from what it is with meat, being more solid and mostly white in color, instead of fluid and dark.

9:50. Bb has been about the oval lawn and house all morning. B chased him away once, but he was back again in a few minutes.

At 2:30 it was noticed that the meat in the road-runner's cage was gone. What I thought to be a thorough inspection of the interior failed to reveal his presence. However, on glancing back, when about 50 feet away, I was surprised to see him come marching calmly out. He blends in with shadows -- especially mottled shadows -- perfectly. His next move was to inspect the under side of a low platform forming part of a temporary addition to the cage, but he suddenly darted out in haste pursued by a yellow-jacket, and crouched behind a bush staring fixedly at the scene of his discomfiture for a minute or two, then wandered off.

At 5:35 I surprised Nova in the nest all by herself. She slipped out, but remained near it scripping. B then appeared and searched for twigs beneath the tree, not impressed by his mate's concern. Shortly afterwards, as judged by sounds and movements of the branches, both were at the nest. This looks like business.

Sept. 26th.

10:30 A.M. Rhody visited the cage before 8 A.M. to get some of the despised meat. Evidently foraging on ones own has its disadvantages, and there is something to be gained by running the risk of having the door closed on one again.

There was much full song earlier in the morning, caused, I think, by Nova being away and Brownie desiring her immediate return.

now that there is a nest to be built.

B's tactics with Nova are essentially different than with Greenie, doubtless of necessity. Nova stays away a good part of the time, whereas G was B's constant companion and co-worker on the nests. It is necessary to call Nova from abroad to keep her interest from wavering.

Thus as a typical example: Until about 10 A.M. there was no sign of B at the nest, though he most probably had been there earlier. At that time he mounted the wind-screen and began calling in detached, musical phrases, evidently in response to a thrasher about 200 to 250 yards to the east that had begun, a few seconds before, to sing in a peculiarly high-pitched voice and in phrases attributed to Nova. This brought no results, so he moved to the top of the old oak and put on more power. For several minutes there was a long range duet, then the distant bird began to approach. B shifted back to the nest and sang there and Nova joined him. B came down for twigs and Nova went up into the sparrow-hawk pine and continued her full song in the same characteristic light, high-pitched voice with phrases not used by Brownie. (These notes show that in quality of tone, pitch and phrases used, Greenie was practically indistinguishable from Brownie). B continued to carry twigs to the nest diligently, and Nova to sing. B finally called loudly and N joined him, only to leave shortly. In a few moments she was back again without being called, ran to him where he was gathering twigs about 10 feet from me (an unusually bold act for her) "haighed" at him and climbed a pine close by, B continuing his work after coming to me for refreshments. He seems to be satisfied to work alone if he knows where Nova is and she will come occasionally and take a look at things. I have not yet seen her actually carry any material to the nest.

Bb still holds forth at the oval lawn. He is getting new ear covers and still takes an occasional nip at my fingers.

Pat (Little Brownie) About 11 o'clock I went over to the Reynolds', and as I approached the aviary, Pat (Little Brownie) who was out on the lawn, flew into it for a good meal of soft food and a drink. After spending 5 or 10 minutes there, he came out and occupied himself tapping a stump and singing sub-song for about 15 minutes, down amongst the thimble-berries under the oaks. The experiment seems to have been a success, as he appears to be well established there.

Rhody. This bird, at liberty, is even more interesting, now that he is tame, than when he was in jail.

At 2:10 (now 2:45) as I was watering the garden I came upon him unexpectedly at the oval lawn. Under similar conditions the thrashers, even Brownie, would have retreated into the bushes to emerge later. Not so Rhody. He stood his ground and when I held out my hand to him and called, he glided smoothly over to me and stood waiting for developments patiently. I offered him a meal-worm at a time, which he took, very gently, from my hand. He then caught sight of a small butterfly, which he caught neatly after stalking it slowly like a cat. Next the fish in the pool interested him, but he could determine no easy method of getting at them. He considered and rejected the possibility of walking out on the lily pads. Next a bee or a yellow-jacket on the lawn caught his eye. A slow, creeping stalk, followed by a rush, settled that problem. He disposed of the insect carefully. In the tree behind me was a wren. He watched it for a time, then ran down the road toward the cage, but deflected from his course to chase a brown towhee which easily eluded him. I went to a point near the cage by a different route and he soon appeared, entered fearlessly and ate two hardened scraps of meat which he had consistently rejected for the last week. Now that he has to forage for himself, his ideas as to what constitutes proper food for a road-runner are considerably less exacting. I went into the cage with him, but he was not disturbed. When I came out, he foraged about in-

side for a time, picking up minute scraps of something, then suddenly became interested in the magpies whom he has persistently and consistently avoided heretofore, and not even looked at if he could avoid it. He crouched near the wire and made passes at them when they approached. To get nearer, he went on top of their cage and followed them about with ruffled feathers, making "pulled" pecks in their general direction. When they dropped to the ground, so did he and re-entered his cage to get closer. It was like dogs on the opposite sides of a fence with Rhody taking the offensive. Finally, with a loud combined boo and rattle of the beak, he dashed all along the front of their cage, made two or three circles and came out. However, he was not quite finished with his antics and pretended to attack the empty box which holds open the door of the cage and cavorted about it a few times. I am inclined to think that all of this was play induced by a feeling of well-being incident to a full stomach. It is curious, though, that after all of these months of association with the magpies, he should for the first time honor them with his attentions in so marked a manner.

If he stays here and gets curious about the thrashers' present operations, it may be the part of wisdom to close the door on him again for a time.

4:35 P.M. Rhody has just finished an hour's exhibition of himself to the other birds, on a garden bench, although that was not his primary object. At about 3:30 he visited the cage to get some of the fresh meat just placed there (how his views have changed!). After a bluff at the magpies he sought out the bench to rest and preen, and immediately became the focal point of other birds.

First were the wren tits, who croaked at him and passed on.

Next were the plain titmice and the green-backed goldfinches-- a pair of each. The former scolded him for perhaps 25 minutes, the finches alternately scolding and singing for about the same

length of time. They were joined by two song sparrows, who kept further away (about 10 feet instead of 6 or 8). Two spotted towhees perhaps 15 feet at the closest. Several golden-crowned sparrows (the first of the season noted here)--less interested, but still concerned. An occasional Anna hummingbird squeaking by. (On the lawn they had darted at him). These birds after such visits, retired to about 30 feet distance, where one of them perched in an oak and the other made narrow U-shaped flights over it emitting a hollow whistling sound at the lowest point. (I observe that they do this almost any time of the year). Rhody ignored all of these birds absolutely, continuing to preen and sun himself. Incidentally, during this operation he uses his tail as a brace, like the trail on a field gun.

Soon a Hermit thrush came and perched about 6 feet over his head. (The first hermit thrush of the season here--overlapping the russet-backed, still here). This interested Rhody and he crouched rigidly with his bill pointed toward the visitor until the latter left in a few seconds. (Manifestly the road-runner can be useful in locating first arrivals).

Rhody did not leave until the shadows fell upon him, then he stepped down and flowed silently by me, pausing to pick up a worm dropped to him, until he found another sunny spot about 10 feet away. There I left him.

With all of his recent prowling about the place, there is still a lizard nearly always posted conspicuously at one certain spot on a wall by a path. I have seen Rhody within 20 feet of him more than once, yet he either has not seen him or else has failed to catch him.

Sept. 27th.

Brownie opened the day with song, much of which, I suspect, is intended to bring back Nova from wherever she may be.

He worked almost continuously on the nest from 9 until about

12, at which time I was sitting by the dormitory tree. At that time Rhody was seen headed for his cage and my attention was concentrated on him. Rhody went in, got his meat, "flirted" with the magpies, came out, performed a few antics about a box and a chair, seemingly in play, had a good drink from the Indian mortar, then trotted over toward me. Instead of coming all the way he decided that there was something interesting about the dormitory tree, so for 5 or 10 minutes he walked around beneath its branches peering up into it intently and considering various routes by which he might climb up into it. Two or three times he crouched as if to fly up into it, but abandoned the attempt. From the direction of his most concentrated gaze, I am reasonably certain that Brownie's nest was the principal, if not the only, attraction. In the meantime B had left, and as the nest is still a mere lattice-work and can be seen through in all directions, it would not have been necessary for R to leave the ground in order to satisfy himself that it contained nothing worthy of his attention. So he wandered off, occasionally returning to the cage during the afternoon for more meat.

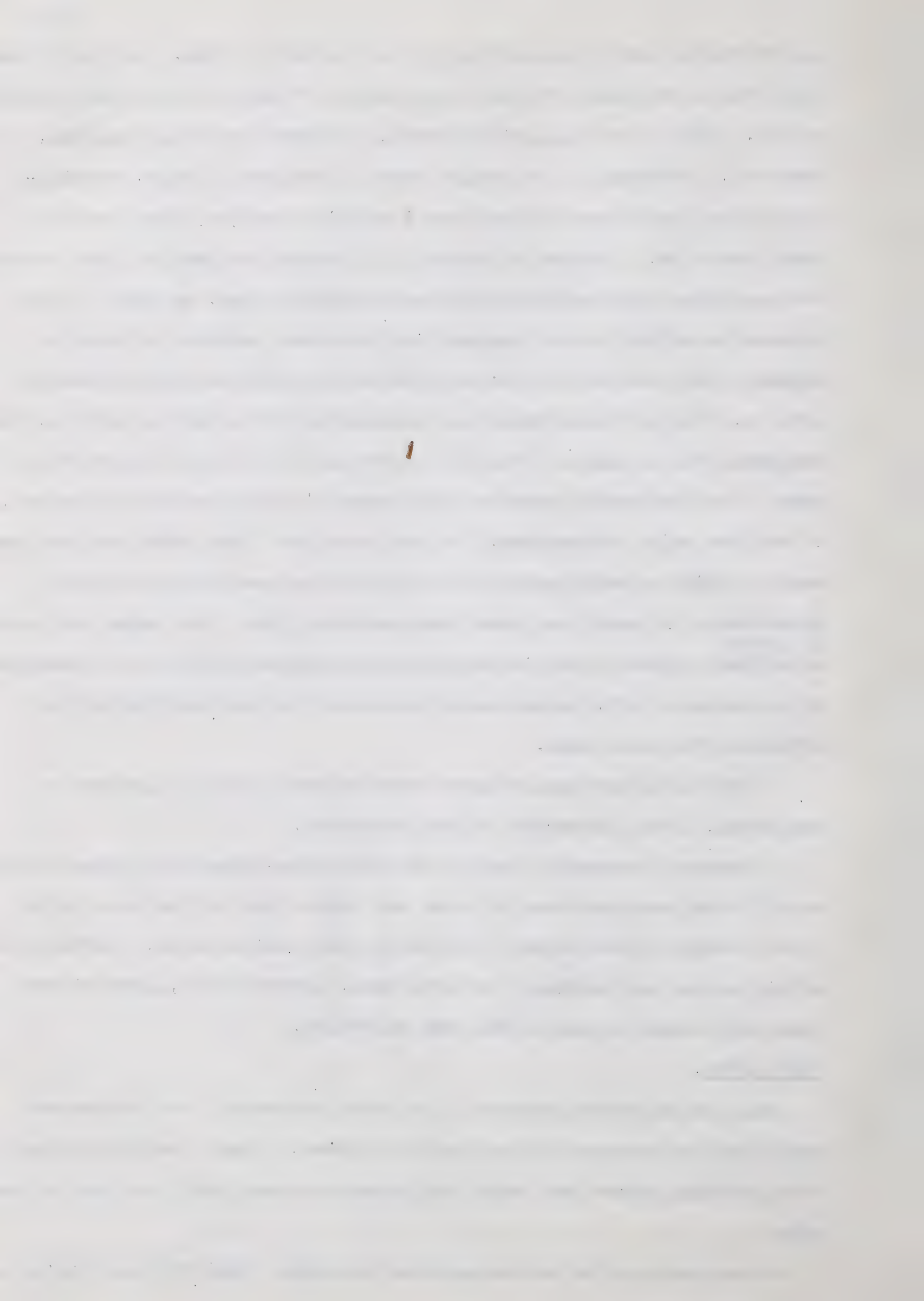
That he is getting at least some natural food is apparent by the dense, limey character of his droppings.

B worked frequently during the afternoon--especially when it cooled off--and even got Nova to come and have a look at the nest while I was watching from below. On one of his visits to me, I offered him a twig as he was leaving. He came back, looked at it, gave it one peck and picked up one of his own selection.

Sept. 28th.

Song began before sunrise. As noted yesterday, its character indicated its purpose to be a call for Nova. When I went out there B was working alone and Rhody had taken the meat left for him in the cage.

Bb was anxious for worms and when he came, "The" fly was riding on



the top of his head. Although I do not know whether this is a biting fly, I suspect that it is the cause of the sudden, frantic leaps and yips which I have noted with nearly all of the thrashers here.

Fortunately I secured one from a live sparrow which was offered to Rhody, and doubtless they will be able to classify it at the University. Apparently it is a common parasite on wild birds. The sparrow had several on him, underneath his feathers.

The moult.

I thought B had finished his, but occasionally I glimpse the sheath of a pin-feather on his wings. I have been unable to see whether the imperfect feather on his left wing--noted last year about this(?) time--has been replaced.

Brownie's

Bb is getting so smooth that it is necessary to scrutinize him pretty carefully to be sure of his identity. He is getting grayer about the head.

Bb's

Bb full song(?) I suspected him of full song yesterday, but can not be sure.

(By a curious coincidence, just now --10:25 A.M.--he started to sing undersong. He is about 75 feet away digging diligently. An Anna humming-bird is near him singing: Be-zit, be-zee, zit, zit, yurk, bee'voor! interminably).

12:30 P.M. Whatever it is that bites B and Bb is particularly active just now. Both B and Bb at the oval lawn, during the past few minutes, have even tried to run away from it after jumping and prod-^{just}ding frantically. As noted with Greenie, both of them have frozen in rigid, expectant attitudes at my feet waiting to be bitten. The attack, as gauged by the point where they immediately search themselves, may occur any place and they seem unable to catch their tormentors. Sometimes I have wondered whether it might not be an internal parasite, especially since the worm was found in Little Greenie's intestines, but doubt if such is the case.

1:35 P.M. B has just been sitting alongside me waiting for another attack and saying: over and over again:

Chup, Chup, pee-olepee-yule, pee-ole.

This time it was on the neck. He jumped into the air and ran for 10 feet before stopping. He then ran to join Nova who was at the oval lawn, still saying; pee-ole, pee-yule.....

This bird seems never to come to the end of his vocabulary. He was located this time by hearing this phrase down below in the orchard. I followed it up very carefully expecting to find a new bird, and while listening intently to get the direction, Brownie stepped out from under a bush and uttered it. Perhaps pee-ole or pee-yule is his name for "the" fly!

4:10 P.M. Rhody, now that he is free, is more entertaining than ever, and is proving a fine motion picture actor, giving plenty of opportunities for interesting scenes. If I had more skill and experience I could get some remarkable pictures. As it is, some I took this afternoon may turn out to be fair. This is what he did in front of the camera, some of which I got; the time involved being about three-quarters of an hour:

As the meat had just disappeared in the cage, I knew he was not far away. Search disclosed him on top of it--where I did not think to look at first. He then moved over to the magpie section and teased them through the roof. He came down and entered the cage and got meat that had just been put there. On his way out he teased the magpies some more, then dusted, then a long drink at the mortar. He then retired to the shade to cool off (Temp. 82). I had correctly anticipated all of these moves, and then thought the next one would be to go to a certain bench in the garden nearer the house, so I moved the camera there. He came shortly and posed about 20 feet from me, then caught sight of a butterfly which he picked out of the air in a whirlwind of motion which was too fast for me. However, he next spied a clump of dry gladiolus leaves, stalked them, seized one in his bill, tore it

from the ground and proceeded to "kill" it, just as if it were a snake. This I "got". (Distance about 18 feet, $4\frac{1}{2}$ inch telephoto lens, diaphragm f.8 account light conditions being somewhat unfavorable, panchromatic film). He then wandered off to see what the spotted towhee nearby was scolding about. I neglected to note that he played with the butterfly as he does with a lizard, but I was able to get only an insignificant portion of this.

Being free has brought out his playful disposition, and his tameness makes him unembarrassed in my presence and, therefore, natural in his actions; an ideal condition, especially as the surroundings are those in which he has chosen to live.

It is curious that, now that he is free to get the kind of food he prefers, he comes back to get the butcher's meat, the rejection of which in captivity was my principal source of anxiety concerning him.

While photographing Rhody a flock of 8 to a dozen Lewis woodpeckers flew out of my oaks and off toward the north-east; this is the first time these birds have been seen at this place.

Sept. 29th.

Almost no sound from the thrashers during the early morning hours of what promises to be a rather hot day.

At 7:30 A.M. a new combination, in amicable relationship, was at the oval lawn, Rhody and Bb, 6 to 10 feet apart, looking for food. Bb got cut worms and Rhody at least one very large angle-worm with which he ran off.

Up to 11 very little work was done on the nest, B spending a large part of his time sitting in it quietly. It is now a wide, shallow bowl, open in texture. Yesterday it was almost a hollow ring, formed from the platform by Brownie's pushing interior portions out to the rim with the back of his bill, in part, lifting out some pieces and bringing in new material added to the rim.

At 11 B was resting in the nest, Nova was preening in the glade

and warbling softly, Bb was resting at the oval lawn. Bb came to me on invitation, with "the" fly riding on top of his head. It crawled beneath his feathers and there was shortly an exhibition of pyrotechnics viewed at close range. On such occasions, the thrashers seem to be suspicious of everything near at hand for the time being, and are extremely nervous, even retreating precipitately if I allow my body to sway slightly, though returning almost immediately.

Sept. 30th.

At 5:40 A.M. the first thrasher calls and short songs were heard, but they soon ceased.

At that time Bb, who, if his father is not there, "owns" the oval lawn territory, was sweeping its surface lightly.

At 7:20 nothing was to be seen of his elders.

At 7:30 Rhody popped up at my feet, ran off about 6 feet, and stopped and looked intently into the bushes (sage) at my right, apparently considering me harmless and less attractive than whatever it was had attracted his attention. He made a dart at the bushes and some bird came rustling out hurriedly; Rhody, however, did not press the matter. The fugitive proved to be Brownie, who was sitting a few feet behind my back. He was not especially alarmed--perhaps not at all, only startled--as he returned to the bushes, even nearer Rhody, and began to dig. R walked off a few feet and B followed him. They stood for a few moments on the opposite sides of a bush, not in tense attitudes, then Rhody made a sudden rush directly away from B, jumped into the air, seized the tip of an old-man branch and ran off with it toward the cage. I thought he had suddenly remembered the meat there, but although he entered, it was the magpies that interested him. He cavorted about for their benefit, ran in and out of the cage, conjured up imaginary enemies under the platform and acted like a very young puppy. For the most part, the magpies watched interestedly, one of them getting as close to Rhody as the wire would permit. As a final

flourish Rhody re-entered the cage, made a hurried loop along the magpie front with spread wings and tail and ran off to stare at the scenery through the fence.

Two hours later I encountered him near the entrance from the street. He chased a butterfly toward me, but stopped as it passed me and when I held out a worm, came and took it gently from my hand. His attention wandered to Brownie and Nova digging across the driveway to the north, so he went to investigate. On the way he discovered a bogie under a bush and "attacked" it, only to be distracted by a dried brake ten feet away. He pulled the tip off of this and carried it to the berry patch. Here he crouched and gazed at something under a baccharis, darted under it and out the other side and pursued a bird 30 feet to the north boundary where he stopped and the pursued sat in an acacia over his head. It was Brownie again. B said we-oo-hickey once or twice, then moved off a few feet to dig in a compost heap without a backward look. R then simply evaporated.

These notes have recorded R's interest in B on occasions when the latter has approached the cage in which R was incarcerated. The fact that Rhody, when apparently attacking Brownie, has also bestowed similar attentions on inanimate objects on the same occasions and played the clown in general, seems to indicate that this is merely play. However, it remains to be seen whether he regards B as a playmate, an enemy or as one who directly or indirectly, if followed, might guide him to a nest or even himself prove an attractive article of diet. This last I regard as highly improbable. So far Rhody has never attempted to kill any object that he could not swallow whole.

Bb during the afternoon sang often, his music being indistinguishable from B's quarter to half song, provided it is one of B's without mimicry.

Practically no work on the nest today.

Oct. 1st. A cloudy morning (until about 10), but it opened with thrasher song.

About 8:30 B carried one small fibre to the nest, then retired to forage and sing.

About 9:30 Rhody was spotted up in the old oak--the first time since his release. He sailed down in my general direction and landed about 10 feet from me. He had eaten the meat in the cage and was not interested for the time being in my offerings, but gradually worked toward the entrance. I followed him out to the street.

Rhody and I go
out into the street.

I wished to see what he did away from home.

First he saw a towhee out in the street and made a 50 foot dash at it, with wings spread horizontally. The bird did not wait, but sought refuge in the bushes. ^RB saw it was no use to follow, so turned abruptly to the left, raising his right wing to a vertical position in order to bank at the turn. He prospected under the bushes on the south side of the street, then ran across the sidewalk and captured some insect. Facing toward home, he saw another brown towhee in the middle of the street and gave chase as before, but the bird had too much handicap and eluded his pursuer. This brought R to the bank which bounds this place on the south. He worked west along the bank, I accompanying him at about 6 feet distance. This did not seem to annoy him at all.

At 9:50 he crouched and stared intently at a spot underneath a *pittosporum undulatum*, using his tail as a brace. It looked like a good place for lizards. I stood 7 feet from him and did not move. For 20 minutes he stared at this spot with no movement beyond the rolling of his eyes, winking and the respiratory movement of his throat feathers. A painted lady butterfly flitted about his head a few seconds, but he only rolled his eyes at it. He seemed intent on larger game. He kept his bill pointed N.E. After a half hour an automobile pulled up to the curb 15 feet from him. A woman asked me

for directions, shut the door with a bang, reversed the car, backed and finally parked and left the car. Rhody merely turned his head slightly, but did not look at the car.

A sow-bug crawled from under a leaf and passed under his bill, then followed a course parallel to Rhody's body, passing him by inches only, and disappeared about 3 feet from where first seen. R rolled his eyes down to look at it and moved his head only when it got behind him, when he turned his head as if to see whether the creature was going to crawl on him. The sun came out and R immediately spread his feathers to let it shine on his back and advanced two steps, but continued his watch. When he heard the woman returning to the car, he crouched and appeared nervous. (She was approaching from his rear.) A beautiful monarch butterfly lit on a branch of a Fremontia about 6 feet almost directly over his head. This was almost too much and I could "see" his resolution falter. However, after a glance or two at it and some eye rolling, he continued on the job. He had taken only two steps in 45 minutes. He slowly straightened to his full height after about 50 minutes vigil and peered cautiously at his objective, whatever it was, advanced a few more steps, and continued as before. His watch lasted, altogether, 1 hour and 20 minutes, when he gave up the job and turned his back and faced me. I rewarded him with a worm, then went to get the movie camera and returned to find him slowly working his way back toward the entrance through the chaparral, scrutinizing the ground carefully, and getting a few things to eat. He does not dig or scratch the earth in his search for food. The flesh-pots of Egypt were manifestly calling him and he worked his way toward the cage. Evidently he is a patient still-hunter as well as being a stalker. Although he got nothing as a result of his watch, the place was a good one for lizard with plenty hiding places for them. I suppose he had seen one crawling into a hole of some sort under the bush.

+ Took pictures of him. 7' 10" - 1' 10" C. L.

I can see now how useful to him is this ability to roll his eyes about and shift his gaze over a considerable field without moving his head, for it enables him to keep watch over a fairly wide area without revealing his presence.

His color scheme fits admirably into local surroundings and he undoubtedly has great confidence in its protective power, for he did not budge with automobiles passing by in the street 15 or 20 feet away and concentrated on his task single-mindedly. If one knew precisely where to look he could have been seen from almost any place, for he was really much in the open. He was in plain sight of the woman in the car and his image must actually have been on her retina, but I am sure she did not see him consciously, or she would have made some comment while talking to me, as road-runners are not usually seen on city streets.

At about 3 P.M. Rhody was seen dodging in and out of the cage and posing for the benefit of the magpies, who watched him phlegmatically. He was so interested in this game that he forgot about the meat until he was about finished. When he came out for a drink and then stood about 15 feet from me with his back toward the cage, one of the magpies dropped down to the ground inside and came to the wire, also about 15 feet from him. I called to him, pointing at the same time: "Look, Rhody, now you can catch him." He turned instantly and dashed at the cage with a great display of feathers, just as if he understood both the gesture and the words, and although ones judgment insists that he did not, still a feeling is left that he did. I went to the cage and sat in the door near the magpie, but this did not prevent Rhody from continuing his antics even though it necessitated his almost stepping on me, nor did he worry about his exit being blocked. I am certain that Brownie, or any of the thrashers, would have felt cornered and been frightened.

If I crouch within 3 or 4 feet of Rhody and then stand up, or if

I stand near him and then walk away, he keeps his place. In similar circumstances even Brownie will retreat at once. So would all of the dozen (?) other thrashers that I have fed from hand here.

At sunset Brownie approached the Dormitory, but kept looking in all directions as if to locate Nova. He began to sing softly and was answered promptly by her off toward the glade: queelick, queelick, indefinitely. This seemed to satisfy him and he went up to the nest. I have noticed many times that he is ^{often} satisfied, both at bed time and at other times, when he has determined that she is in the immediate vicinity and makes no effort to establish closer contact, but goes on about his business, whatever it may be, when he hears her.

Very little work was done on the nest and B was seen in it but a few times during the day and then he was resting, singing, or doing nothing.

Oct. 2nd.

Quite a lot of early morning song. Brownie, Nova, Bb and Rhody all present and accounted for, though I had to hunt for the latter and found him "pointing" the towhees in the branches of a pine tree over his head. When the towhees shifted to a peach tree a few feet away, he lost interest and turned to a careful scrutiny of his immediate surroundings in minute detail, without moving his body. This produced no results, so after a thorough preening, he headed toward the cage, incidentally driving a flock of quail ahead of him.

Brownie climbed the old oak and called for Nova with success, but as soon as she reached him on his high perch, he sailed down to me for worms rather ungallantly. Nova went to the dormitory tree first, then B. After a short wait I followed. Nova departed hastily and B was sitting quietly in the structure. His attitude seems to be that if there is a nest and he, or anybody else sits in it enough, sooner or later eggs appear in it miraculously, but that for some

reason, not yet quite clear, it is advisable to have another thrasher take some interest in the affair.

During this last episode Nova occasionally sang in a high-pitched voice which differed widely from Brownie's and Greenie's songs.

Bb continues to haunt the oval lawn neighborhood. With his new ear coverts he looks very mature. He is very friendly, but will not jump up to my hand.

Oct. 3rd.

Very little early morning song.

At breakfast time B and Bb² were together searching the upper lawn in perfectly amicable relationship, rather to my surprise.

Rhody was sunning himself outside the glade.

About 9:30 I tried to get movies of him up near the cage, but he insisted upon walking under my camera tripod! He then went into the cage for some meat and chose to remain there enjoying the view through the wires. When he came out, he again insisted upon coming closer than I wanted him, but as he went away I got him, though not in the poses desired, which were: dusting, sunning his back and drinking.

During the day there appeared to be no work done on the nest, although Brownie visited it occasionally, and used it to sleep in at night.

Oct. 4th.

A lot of early morning song and calling by B.

At 8:30 Rhody was skylarking about the glade, in and out, circling about the bushes and the trunk of the old oak with extravagant poses, trying to pull up roots, booing and spreading wings and tail. Altogether having a good time with himself as a playmate. He sobered down when I appeared and came dutifully for worms dropped to him. When talked to he appeared to listen and try to understand. At such times he is very docile and seems to like to stand near me.

A little later I got the movies I wanted of him sunning his back

and when he moved to the top of a 4 ft. retaining wall to lie in the sun, did not even start when I shoved the camera 3 feet from his nose and turned it loose.

Mocking bird. At about 10:30 A.M., while seated by the dormitory tree, I heard a smacking sort of bird note, which puzzled me at first, then I realized that it must be a mocking bird or else a very good imitation by Brownie. However, it proved to be the first mocking bird seen by me at this place--sitting on the top of a pine. It flew off showing the white patches on its wings conspicuously.

Brownie seems to be doing almost nothing at the nest, though it is gradually getting less open in structure. I saw him place only one almost invisible fibre in it today.

Bb is now so mature looking that I have to depend upon his attitude towards me for positive identification.

Oct. 5th.

Frequent early morning song up to about 7:30, when it ceased. Its purport I believe was to induce Nova to join in nesting operations. The forenoon was quiet until about mid-day, when B, at the oval lawn, suddenly headed for the dormitory tree about 50 or 60 yards away, giving his "bugle call" (Song A), followed by peet-byouicks, ka-dah-cuts and other phrases. At the nest he continued to call, adding imperative jay calls, but to no avail. When he shifted to the old oak he had better success. Nova came, they talked a little, but neither went to the nest.

B is having great difficulty in getting Nova to take any interest in family affairs at all, and up to the present, I should say that he has scored a failure. Nova never has been so compliant as Greenie and she has certainly shown no enthusiasm about Brownie's proposed autumnal housekeeping venture.

During the rest of the day little work was done.

Oct. 6th.

12:25 P.M. Rain during the night and part of the forenoon. Although it has been only about enough to settle the dust somewhat, it is the only real rain since July 1st. when the beginning of the season is arbitrarily supposed to begin.

Despite the rain there was considerable early morning song and nest-sitting by B. He has had more success with Nova and they have been together almost constantly since about 9. talking most of the time, Nova not hesitating to come out in the open and stay there in my presence--a new phase for her.

While B and N were sitting in the old oak (Rhody preening on the ground just below B) Brownie sang about $\frac{1}{2}$ song, using phrases which he has not used for a long time. One repeatedly heard was a succession of whistles followed by a kissing sound (calling the dog). There were also many jingling phrases such as: po-leenk, tink-o-link, etc. The call of the young black-headed grosbeak and the full song of the adult grosbeak were also approximated many times. B seemed to be able to get N to come to him out of the bushes whenever he liked, and on one occasion N was the leader to the dormitory tree.

Rhody preened a long time in the glade, perhaps a half hour, then decided to see what I was doing outside and came to me voluntarily. He took worms from my hand and, just as the sun came out, turned his back on me abruptly and "opened up" his back to the warmth, standing where I could reach out and touch his tail, if I had cared to do so. His wings and wing coverts conceal his entire back normally, so when he opens up his real back plumage shows. It looks like fur and is mouse colored. He seemed perfectly at ease, stripped "scurf" off of the base of new feathers around his oil gland and finally lay down contentedly turning his head now and then in the direction of some new sound, but not minding small movements of mine behind his back, since he did not turn to look at me.

After about a half hour of this I left him to get some meat for him as he had not taken any from the cage during the morning. On returning, I found him in another place unexpectedly--almost stepping on him. He was crouched down apprehensively, yet as soon as he saw the meat, came and took it from my fingers at once, though shyly. I got some more and found he had moved again. He ate this also. It seems strange that he should not have gone to the ^{accustomed} place for it if he was hungry.

I find that in hunting for food he does dig in the ground, though superficially, and without the rhythm of the thrasher. His digging is more casual, but he uses side sweeps of the bill also. He does not scratch to remove litter from the surface.

The "garters" previously commented upon, do not go all the way around. They now appear to be places where the horny scales are missing and there are several distributed at random on each tarsus and of the same dull, slatey blue shade as the eye patch.

Throughout the rest of the day Brownie and Nova were constantly in touch with each other, B showing little interest in me as a purveyor of food.

Oct. 7th.

A lot of early morning song.

About 7:50 Brownie climbed the old oak and began calling Nova in considerably less than full voice--showing that she was not far away--as was proven by her promptly joining him.

A few minutes later Bb appeared (he was very "scarce" yesterday) evidently under the misapprehension that the invitation included him. B soon demonstrated that Bb was mistaken and there followed a series of rapid evolutions in the acacias along the north line by means of which Bb learned the truth. B could not catch him and disappeared. I endeavored to coax Bb to come to me, but he was too much upset. A soft pewh was heard behind me and Brownie was there demanding worms.

This sudden interest in me after his indifference of yesterday and his treatment of Bb did not warrant his being shown special favor, but he got the worms notwithstanding and again chased Bb--presumably to show me how little my views in the matter counted. Bb would not leave the place and B quit. However all this makes Bb's home life less pleasant than it should be, and I suppose, will result in his eventual retirement. During this episode Nova took no part, but applauded or censured--I do not know which--from the gallery.

B sang frequently during the rest of the forenoon.

At 1 P.M. he was singing from the old oak. On going there Rhody was seen preening on a stub branch of the same tree. After several minutes he flew down and ran rapidly down the road to the west. I followed by a different route and intercepted him about 150 yards from the tree where he had halted. I wished to see if he had suddenly become afraid of me, but he continued his course, following the curve of the road, slowly, which brought him to me, where he accepted worms dropped to him. Passing me, he climbed up an oak in which there were bush-tits a towhee and a plain titmouse. They had been following his course, but keeping up in the trees, scolding. The scolding ceased and they gradually dispersed. Rhody came down and went up the next tree, where there was an old bush-tit nest, also a wren and a brown towhee. He did not investigate the nest and the other birds left slowly. He stayed in the tree several minutes, dropped to the ground outside the fence, played with twigs, picked up a few things to eat, but preened mostly. He then wandered off slowly into the bushes, preening every few steps, and I left him at 1:50.

Oct. 2th.

There was early morning song.

At about 8:50 Brownie was actually working at the nest. Nova was with him (a good sign) but left as I approached, to return on my

departure.

Bb was working by himself at the oval lawn, indifferent to me, probably as a result of B's recent persecution.

9:58. Bb is at the oval lawn. When I went out just now, he was almost so tame and friendly that I decided that he was B, but his ear coverts did not look just right, and he was a little too rough of plumage. However, a beam of sunlight through an opening in the shrubbery, rested momentarily on his head and his eyes --I thought--showed orange brown, that is: Brownie's color. At the moment I am not absolutely certain of this. He ate all my worms, so I could not assure myself definitely of this point. If they are changing, it will be the first time it has been noted. There was another thrasher with him, unidentified, but not especially timid.

10:15 A.M. Brownie still working at the nest, with Nova's moral support, but not in danger from over-exertion.

10:26. I intercepted Bb on his way to the oval lawn, having now plenty of worms with me. He was in full sun. As he gobbled from the worm-box in my hand, I was able to get the exact facts as to the color of his irides. Looked at when the sun's rays strike about normal to the surface and the head is turned to one side so that the eye is ^{bird's} looked into directly, the color is the same as Greenie's, that is: brownish olive. But when one looks down upon the bird at less than arm's length and diagonally through the eye--so to speak--there is a decided, bright orange-red, tinge. I have not noted this with other thrashers of his approximate age and it may be an indication that the color is in process of change.

10:55. Brownie still working at the nest. Thus far today, it looks as if his activities had surpassed the total for the preceding week. When he condescended to investigate the worm-box it was noted that the defective feather is still there, or else it has a successor which is even worse, as it is now curled up partly and

mars the otherwise smooth surface. The question arises, assuming feathers to be produced from follicles, is this a result of a defective follicle?

Thanks probably to Brownie's preoccupation at the nest for the time being, Bb has reestablished himself at the oval lawn as owner-in-chief of its rights and perquisites. He is doing an invaluable service at the same time by removing cut-worms, some of which are so large that he finds it necessary to break them up before bolting them.

An article called to my attention yesterday recommended spraying with arsenate of lead to destroy these pests. A more pleasant method is to engage thrashers to perform the same service. Except in the case of a newly planted lawn, thrashers cause no significant damage. Personally, I would "feed" lawns to them if that were necessary to keep them here.

Rhody. About noon I was looking for Rhody along the fence at my south line and heard the milkman tell my neighbor that he "was just looking at the roadrunner". I called to the milkman and was told that R had been playing with my neighbor's dog and had run away when his truck approached. Further inquiry disclosed that my neighbor had also seen the play on previous occasions, the two animals being on opposite sides of the fence. I went out and found Rhody across the street looking little and lonesome. He allowed me to approach to about 10 feet and then came the rest of the way when I showed him a worm. I returned to the house, got some meat and went out again. This he took from my hand hungrily. I think he is having difficulty in finding food for himself; also that beef alone is not proper food for him.

About 1:15 P.M. I was down near the fence and saw Rhody about 50 yards away in the street running rapidly toward me. He ran up the bank and along the fence until he found an opening almost at my feet

came through, paused a moment near me and, as I was felicitating myself upon my great attractive powers, ran for the nearest drinking place, thus shattering my ego. The drinking arrangement was one intended primarily for gold-finches, consisting of a small flower pot wired to the vertical pipe of a garden faucet which dripped slowly into it. Rhody could not reach up into it, so he tried to get water by placing his bill against the side of the pot. As there was a mere film on the outside, this did not work. Occasional drops fell from the pot to the ground. These he watched as they fell and tried to pick up as they struck. I took the pot and held it out to him, but he merely rolled his eyes at it and me and headed for the next nearest place --an earthen-ware dish similarly placed, but large enough for thrashers to bathe in. This did not work well either. I made the same experiment here, with the same result. He then ran to the next nearest one--evidently knowing where they all are. This is a similar dish on the ground. Here he drank and drank and drank as if he had not had water for weeks and never expected to see any again. When finally satisfied, he prodded around it with his beak and then retired to preen.

During the rest of the afternoon Brownie visited the nest a few times only, but at sunset, retired to it as usual.

Once he worried Bb at the oval lawn, but Bb returned shortly. I got another good look at Bb's eyes. Under slanting light the orange brown is conspicuous.

Oct. 9th.

A little early morning song, which ceased when B and N appeared at the oval lawn and worked on cut-worms.

Rhody had visited the cage before 8 A.M. for meat and was found preening in an open spot in the "chaparral". Once he paused with head cocked to one side as if listening, then fell to vigorous "surface digging", sweeping away leaves and rolling clods down the bank, some

of which he watched curiously. I could not see that he got anything to eat and left him there when he began preening all over again. This was almost a duplicate of thrasher behavior.

Next I called on Bb at the oval lawn and verified the pronounced orange in his eyes under slanting light, still juvenile under direct. B's eyes are orange-brown under all angles. I suspect that a change of iris color in Bb is in progress. Since first noting the difference in Brownie's and Greenie's eyes I have kept pretty close watch on thrasher eyes, hoping to see changes actually occurring.

Brownie chased Bb at the oval lawn, but not very strenuously. I do not think he really tried to come to close quarters, and while Bb was careful to keep out of his reach, and complained mildly, he considered that a 6 foot interval was sufficient protection and every time B stopped, so did he. Altogether a mild affair.

During the afternoon the three thrashers and Rhody were seen often. Once Rhody and the two adults were in the glade at the same time, indifferent to each other. R still has a good thirst, and a temperature of 86, as it was today, causes him to keep his bill open and seek the shade, although road-runners are popularly associated with much higher temperatures.

and Bb drink together. Julio reports R and Bb drinking from the same dish and that R made his rattling boo at Bb, who was momentarily startled, but that they finished on good terms.

Fox sparrow arrives. First fox sparrow of the season seen here today.

Hermit thrush. The hermit thrush seems to have taken up his winter quarters here also.

Color film of Rh tail feather. I tried a koda-color film on a single tail feather shed by Rhody to see if the colors as viewed in different lights would show up well. The background was a screen blackened with lamp-black. To the eye, viewing the feather in direct sunlight, the colors vary through yellow, gold, golden green, reddish purple, blue.

Oct. 10th.

Early morning song up to about 8 A.M.

Brownie started his nest one month ago, but has made little progress. I assume that the female is not prepared to lay eggs, and it is possible that she will not. This brings up the question again as to the effect of the abundance and the kind of food on the reproductive activities of these birds.

Brownie and Greenie both ate freely of meal worms, soft food and the suet mixture, beginning about 2 years ago. They had an October-November brood. Greenie is now thought to have been a very young bird.

Brownie still partakes of these same foods, but Nova has not had worms and soft food at all (the latter kind not now being provided for them at the feeding stations) and is rarely seen at the suet. She is thought to be an old bird--judged by eye color. If the rich food stimulated B and G to reproduce out of season and B continues to have such food(as he does) and Nova does not have it (which is substantially the fact), it might be supposed that Brownie, on this theory, would be anxious to rear a brood at about the same time this year and Nova would not. So far this seems to fit in with the picture at the moment.

The nest is now behind last year's in its building. Last year the first egg was laid Oct. 13. Weather conditions have paralleled closely those of last year for the same period.

About 1 P.M. Rhody, who a half hour before had crossed a road and climbed a bank to take a piece of meat from hand, was at the glade drinking. I held out to him a large dragon fly just caught in the dining room. This creature, incidentally, was trying to bite me, but could not break the skin. Rhody was interested, but decided in favor of a twig which he carried up into an old man and "chewed". By this time there was a bodyguard of 5 pigeons around me. Rhody came down

and darted across the road by the pigeons, apparently on his belly, with head and neck extended and almost touching the ground. He posed in that attitude with bill touching the opposite bank for a few moments, then made the return trip in the same ridiculous fashion, ending with the same pose. Next he darted through the flock in the same way, then off to the cage to tease the magpies and display for their benefit. A bird in the acacias along the north line about 75 feet away next attracted his attention, so he tore up and down the row of trees rattling his beak without vocal accompaniment. Another dash at the magpie cage followed, then a wide sweeping curve through the berry patch with a rattling boo put him in position to make another dash at my bodyguard which had accompanied me. This accomplished, he endeavored to pull twigs off of a broom bush, picked up and ran off with leaves then composed himself to stare through the fence to the north. However this did not last long and his next act was an entirely new and unexpected one. I was about 20 feet south of him chuckling at his antics. Without warning he passed like an arrow through the air with a rushing of wings about 6 feet from my ear. The first 20 or 30 yards ^{of flight} was practically horizontal. As he crossed the south fence, he rose slightly, and for the next hundred or so sailed down hill without flapping his wings, landing roughly 40 feet lower than his starting point in the back garden of a home. His flight was extremely swift. As he landed a sparrow-hawk rose and landed on the chimney of the house. Rhody ran to that end of the building and I thought his next move would be to go up to the roof, so went down to investigate, but could not see any signs of him at all.

All of this seems to be in the spirit of play and he apparently takes some sort of satisfaction in exhibiting his foolish accomplishments to other birds, and enjoys company when he feels like it, notwithstanding his usually solitary habit. Whether the sparrow-hawk formed a part of the pattern is not clear, though R may have seen him

and decided, on the impulse of the moment, to extend the benefits of his programme to the hawk and not slight him.

Oct. 11th.

Very little early morning song, and no work observed at the nest, though Brownie visited it occasionally and sat in it for perhaps a half hour at a time. He also called Nova to him there, but each time was the first to leave, himself.

At 5:30 P.M. B was stowed away for the night in the nest.

As a coincidence, Rhody also was apparently located for the night at about the same time. I have wondered where he went at night, since it has not been the cage. Accordingly, about 5 P.M., it looked to me as if he were considering the matter, judging by his actions. Accordingly as he wandered out through the gate, I followed him. He went along the street until he came to Dr. Scamell's (across the street from my south west corner). He went up the steps to the front door, looked in the windows (or looked at his reflection), then down to the garage, where he appeared to examine a rear wheel of an automobile. He pecked it lightly. I think he was looking at his reflection in the hub-cap. He then came out, climbed the fence as Dr. Scamell appeared on the scene, went up into a small dense oak and settled himself comfortably on a limb. We stayed there by the tree watching him and conversing for about a half ^{hour} and he seemed well settled. However, there is a steep ramp leading from the garage to the street and cars going in and out are pretty noisy and I doubt if he will have sufficient fortitude to remain for long.

9:10 P.M. Well, Rhody is still there, and as far as I could tell, had not moved an inch since I left, nor did he stir when I turned the flash light on him. He has no wall to flatten his tail against, but a convenient twig keeps it cocked up at a comfortable angle just as it did when he settled himself there about 4 hours ago. He is about 7 feet above the floor of the ramp and about 4 feet from

from the edge. He has passed the test of at least one car going out and returning.

Oct. 12th.

As far as the thrashers are concerned, yesterday's notes cover the situation of today as well, with the addition that I once again observed the orange-brown in Bb's eyes.

At 6 P.M. I went down to see if Rhody, by any chance, was in his last night's roost. He was in the same tree at what appeared to be exactly the same spot. Dr. Scamell says he went there at about 5 P.M. I have observed that Rhody has always gone to roost early. I would like to know why he selected this particular tree. It is a small one that was planted there 5 or 6 years ago, and stands by itself almost on the property line with an open field to the west. Except for the dense foliage, there is no seclusion whatever. There is a clear view of it from the street about 20 feet away and cars are coming out of the garage must almost brush its branches. Also there are a dog and a cat on the premises and another cat which constantly hunts in the field. The house also stands by itself on four sides, the street in front, the field to the west, and the street to the east. It may be that it is the very openness of the situation which appeals to him.

Oct, 13th.

Little early morning song.

About 8:30 A.M. Dr. Alden Miller and one of his students, Mr. Engels to see the thrashers. Both Brownie and Bb entertained us at the oval lawn and came for worms offered them and did a little digging--which was what my visitors wished to observe principally. However, none of the digging was at all energetic.

To offset this defect in the programme, Brownie showed how he calls his mate and staged an exhibition which I do not recall having witnessed before myself, by walking about under a tree in the glade in full view and singing loudly from the ground while moving about.

This was for the benefit of Nova (who did not show herself). He then went to look her up and gave us amongst other things, two variations of his bugle call and his whistle followed by the kissing sound.

Rhody did not appear on the scene until shortly after my visitors had left. After visiting the cage for meat and skylarking for the magpies, he fooled around on the roof of the lath-house and then settled himself comfortably in the branches of an old-man sage for a good rest. As it looked as if he intended to stay there forever, I left him in peace.

I looked in the tree at the Scamell house at 5:15 P.M. Rhody was installed for the night in the exact location of preceding nights with his tail supported by the same branch. When one knows where to look he can actually be seen from the seat of an automobile passing in the street.

About the same time B was stowed away in the nest. Work seems to have ceased entirely on the structure.

Oct. 14th.

Very little early morning song was heard.

A rather strong, dry, warm wind from the north had come up during the early hours and most of the birds were seeking shelter in the lee of the ridge.

Thrashers were heard scripping off to the east and after some calling Brownie appeared in the street headed for home. As he sat on my knee he kept up a running fire of conversation, which, judging by its general character, I took to be intended for Nova, somewhere near, and so it turned out.

About 12:30 I was crouched at the edge of the oval lawn listening to Bb singing softly with unmistakable thrasher quality and watching him dig. He was getting and eating angle-worms. (See earlier comments on thrasher attitude toward these worms).

I became aware of something shadowy moving near my right elbow

and it resolved itself into Rhody, whom I had not seen since late yesterday afternoon, coming up from the rear. He took position on the lawn only three feet in front of me and waited developments patiently. There was no sign of nervousness. Of course, I gave him worms. Bb would not come to me while Rhody was there, but when Rhody made a sudden dash across the lawn and seized a cut-worm (how he saw it, I do not know) Bb came, but retreated when the road-runner returned to sit beside me, back toward me, where I could have reached out and pulled his tail. R stayed there several minutes, evidently satisfied with things in general. Finally a puff of wind blew his tail up in the air and he reached around as if to seize it. This gave him an idea and for a few seconds he tried to catch his own tail exactly as a puppy does. Next he rushed across the lawn and tried to "kill" a gladiolus leaf, then faded into the bushes. I suspected he would eventually be found in the cage, so after waiting a few minutes went there and found him eating meat and entertaining the magpies.

The two birds, Rhody and Bb, showed no hostility or fear of each other beyond that shown by Bb in not coming to me with Rhody less than about 10 feet away.

At 5 P.M. I found Rhody in the orchard by the fig tree. We gradually worked our way westward, first one leading, then the other. When near the side gate to the street, I went out first, Rhody following, stopping every six or eight feet and looking about. I went across the street and stood near the tree in which he has been roosting. He went into the Scamell garage via the front porch, looked with interest at the cars, came out, jumped to the iron railing surmounting the retaining wall which bounds the ramp on the west, then up to his night roost at exactly 5:13.

By the time I could get back to Brownie's nest it was 5:15 $\frac{1}{2}$. B was already here. (Sunset 5:35, Temp. '68)

Oct. 15th.

Very little early morning song.

At 7:45 there was not a thrasher to be seen or heard on the place.

At 8:30 full thrasher song was heard to the south east. As there were no birds to be seen here, I assumed it to be Brownie, since it sounded just like him. I stood near the glade and called and a peculiarly high-pitched song began some place behind me and continued for several minutes. I thought first that it was Nova much improved, and that we had here a new phenomenon, namely, Nova calling Brownie from abroad, reversing the usual procedure. Both songs continued simultaneously, but the one behind approached and shortly two thrashers climbed the old oak at the same time, one came down to me for worms--Brownie. He then returned to his mate in the tree and there was a long singing contest between the near and the distant bird. So it was probably B behind me all the time, yet his song, if it was he, was strange; enough so that I speculated as to whether it was Nova, as stated, Bb or a mocking bird. The usual thrasher phrases were either not present or else undetected. When B sang from the tree he used "standard" phrases.

I have suspected that Rhody spends most of the forenoon foraging in the fields, so about 9 I went out to see if I could find him. I located him right out in the open in the field to the west of the Scamell house, where I expected to find him, though I had never seen him there. I walked out to him and stopped at about 10 feet from him, although he had shown no nervousness at my approach, and offered him worms, which he came and took and then waited beside me. I left him there and came back here for a live sparrow that Julio had caught yesterday. Rhody had moved across the street to the west of my place. When I showed him the bird he came and took hold of it, but was startled by its fluttering and let go, then executed a series of evolutions about me in a lively manner, for some unknown reason. He came for

it again and as we had no definite understanding as to how our actions were to be coordinated, the sparrow got away.

The afternoon turned cloudy and chilly. On this account, about 4:25, I thought it probable that Rhody would go to roost early, and decided to look him up. I found him in the orchard as expected and the experience of yesterday was repeated, Rhody climbing into the tree at exactly 4:40. As I left two men brought a long ladder and unloaded it.

At 5:20, on my return from down town, I stopped at the Scamell house. The ladder was leaning against the house in such a way that the men going up and down it on a repair job would pass within about 8 feet of Rhody. However, when I looked into the tree he was still there.

We have wondered what he would do when it rains and as I observe that he always enters the garage and shows interest in the machines (in addition to looking at himself in the hub-caps) and looks as if he wanted to jump up into them, Dr. Scamell said he would see that the door of one of the cars was left open and if Rhody wanted to sleep inside he was welcome to do so. Some of his interest is undoubtedly due to reflections which he sees of his own movements.

I will see how he reacts to a mirror held in front of him.

Oct. 16th.

A chilly morning with black clouds and a southerly wind (Temp. at 9:30 A.M., 54). There was little early morning song, but at about 9:30 the irrepressible and optimistic Brownie climbed into his sketchy nest, settled himself as if to incubate, and for the next 20 minutes, used up nearly his whole repertoire from his softest slumber song to his loudest, imperative jay calls, in an endeavor to secure Nova's immediate presence. It worked, too; but almost as soon as she arrived at the nest, both left for the glade.

There are no signs of any work being done on the structure ; when

I give Brownie worms, he does not go to work immediately (or at all) as formerly and there are no indications that Nova has any special interest in increasing the local thrasher census returns at the present time. Altogether, prospects are unfavorable; but on the other side of the picture, there is Brownie's apparent faith in some sort of a miracle that will transform what is now merely a resting and sleeping place, into a focal point of life and new interest.

He seems really to practice the principle forming the basis of his own slogan of: "Stick-to-it, stick-to-it!"

Bb was carefully scrutinized this morning while taking worms from me. His eye stripe and ear coverts are lighter and more conspicuous than Brownie's--more like Greenie's and Nova's. In fact he resembles the females I have known in this respect, and not the males. It may be that "he" is really "she" and that B knows it, and that therein lies the explanation of B's not having driven him away. The possibility is also suggested of B's being fed up on all this business of trying to bend the stubborn Nova into compliance with his plans. As these notes show, she has been consistently independent in her views from the first.

Bb's eyes, I think, show more than a suspicion of the orange-brown now, even under direct light.

Dr. Scamell reports that Rhody was still "in bed" at ^{about} 8 o'clock ^{had} this morning, much to his surprise, as he supposed that he had begun foraging long before. This lateness is puzzling, and I wonder if the chilly night and the gloomy morning had anything to do with it.

Rhody's daily routine seems to be about as follows:

Forage in the fields during the entire forenoon, beginning about half the time with an early visit to the cage for meat.

At noon again visit the cage for meat, flirt with the magpies, have a good drink, look around the place for something to amuse him-

self with, roost in a shrub or a tree for a time, sun himself on a bank, preen and dust, and remain on or near this place most of the afternoon, perhaps making one more visit to the cage before 5 o'clock.

Between 4:30 and 5 I can usually count on his being down in the orchard. During the last 5 days this has been invariably true, About 5 (earlier if cloudy) start for the Scamell's, look over the cars, then up into the tree about 5:15. Last night, as stated, he was early. Today it was 5:14. Day before yesterday: 5:13. This evening the garage door was closed and there was a car on the ramp. I accompanied him, but he did not exactly like the look of things and ran off down the street. I stayed where I was and he soon returned, had a look at the closed door, gave it up and went to his roost. The Scamells are delighted to have him about.

Oct. 17th.

Little variation in the thrasher programme, though there was some chasing of Bb by B.

Rhody introduced a new feature by tapping on the Scamell's dining room window.

He went to roost at exactly 5:12 P.M.

Oct. 18th.

Plenty of early morning song.

Rhody gets up late again. At 7:40 I went down to check up on Rhody to see if his later rising showed any signs of being characteristic. He was still in bed! I waited for him to get up, which he did at 7:45. The morning was sunny and mild. Curious behavior for a bird.

At 9 A.M. Brownie was drying himself, after a bath, on top of a low tree, talking constantly in low, bubbling phrases--a sure sign that his mate was somewhere near. When he decided to come for worms his monologue continued as before and he kept up an incessant movement of his wings crossed over his back--a drying operation.

This characteristic performance invariably accompanies drying.

In it the wings are crossed over the back and lying on it, sometimes with the long flight feathers interlocked like playing cards in the act of shuffling. The wings are then rapidly "rubbed" together.

Defective
feather.

The defective feather in B's left wing has not been replaced, and now has at least one more--possibly two more--adjoining feathers similarly affected.

No nesting activities during the day, though B continued to visit the nest and slept in it at night.

Rhody went to roost at exactly 5:12.

Oct. 19th.

Scattered song by B during the day, beginning early in the morning; some calling from the nest, ending with his going to sleep in it about sunset. The structure has not been completed.

Rhody surprised me by suddenly appearing at my feet while I was hammering and sawing inside the cage. When he went out and began to play with twigs and leaves, I got a mirror to hold in front of him, but he was suspicious of it and would not allow himself to be tricked into looking in it and wandered off. He made theatrical dashes at various small objects and carried a leaf down to the street where he proceeded to "kill" it.

I did not time his roosting for the night.

Oct. 20th.

Rhody and the
mirror.

Very little early morning song.

When I saw Rhody in the orchard drinking, I knew he would wind up at the cage.

So at 11:40 I placed an 8 x 11 mirror in the "vestibule" of the cage where he would have to pass within a foot or two of it in order to enter, and located at such an angle that he could not very well avoid seeing himself in it.

As he passed about a foot from the mirror, he caught a glimpse of himself and shied like a horse, but continued on to get the meat.

He then posed for the benefit of the magpies, who are now back in the large cage, and tried to get through the wire to them, at a point where I formerly had a door for him to use. He then looked about, still in the cage, and saw a young mocking-bird (a bird of the year, born at Niles). in the section adjoining. He climbed up the wire to have a better look at him, then started to walk out slowly. He saw himself in the mirror and looked deliberately at his reflection without evident excitement. He examined himself and touched his image with his bill, then came out and looked into the cage behind the mirror, where the mirror was leaning up against the wire, then returned to the cage. That was the beginning of his downfall. The mirror fascinated him and he could not leave it for more than a few seconds at a time. He spread his wings, cocked his tail up vertically--widely spread and devoted himself to single-minded interest in his reflection, tapping the glass, at first gently then harder. Several times he resolved to shake off the spell and clear out, but each time as he turned to walk away, so did the other bird, and he immediately began all over again. He could not get by the mirror!

This kept up for about 10 minutes before I decided that he was "trapped" indefinitely and would probably still be at it if I got the motion picture camera. Such proved to be the case. I got 57½ feet of film. Unfortunately some of it was exposed with too large a diaphragm, owing to my overlooking to reset the stop, after focusing, to the proper opening, in my excitement.

Snody continued to get more and more excited. This was heightened by his inability to "escape". He tried many times to walk by the mirror, but each time, when he caught his reflection again, was back at it like a flash. He began to boo and rattle his beak, so after exactly 33 minutes, to save him from apoplexy, I removed the mirror. He came out rather hurriedly without a glance at the place where the mirror had been, but calmed down almost immediately and rested nearby

in the shade.

This was an extremely interesting performance and one which, at the same time, displayed Rhody's real beauty to greatest advantage; for under such circumstances, full of animation and intensely interested himself, with black, white and green showing prominently, he is a handsome bird.

R's bed time

Dr. Scamell says that Rhody went to bed early last night.
5:25 P.M. Rhody went to bed at 4:55.

R's rising time

The doctor says that he did not leave his roost until about 8:30 this morning. 15½ hours in bed should be enough for any bird. The days are mild and clear and there seems to be no weather condition that would encourage such laziness.

Oct. 21st.

Brownie began the day with song and calls.

It began to rain during the early forenoon, and Rhody, when seen, appeared to be trying to determine what it was all about. He would sit under a tree and watch the large drops falling from the branches. His back and tail were quite wet and he looked disconsolate.

I made a house for him and placed it in the tree at the Scamell place where he roosts, about a foot from his perch, taking a chance on its frightening him away. However, at 4:25 (early even for him) he jumped up into the tree and sat on the front porch of the house. I left and returned in about 10 minutes. The rain had ceased and it was clearing. Rhody had moved to his regular roost.

I placed a similar house, slightly larger, in a ceanothus on the bank north of the fig tree, as an alternative, hoping that he would find it and sleep there instead of away from "home". Naturally I do not know whether road-runners will occupy such houses. In the closed part of each there was put a comfortable bed of pine needles. Perhaps he will think that these are nests of other birds, and it remains to be seen whether they repel or attract him. I believe that

he will at least investigate them as a possible source of food, if for no other reason.

He sat about 10 feet away while I was placing the second house. He took a live mouse offered him, but did not eat it.

Oct. 22nd.

It cleared at sunset last night.

Brownie sang often during the early morning hours.

Rhody was found hunting on the edge of the chaparral to the west. He took and ate a live mouse offered him, but only when it was put on the ground in front of him and started to run.

A little later he was up on the bank near the second house. He looked at it curiously from the ground, then, much to my delight, and somewhat to my surprise, went up to it, using a perch which had been placed there for his convenience. This time he did not stop at the porch, but went inside and turned about in there. I left while he was still in it, so as not to complicate any mental processes which he might indulge in as a result of his discovery .

11:45. Well, Rhody is still in the house! It was almost exactly 45 minutes ago when he entered. This is encouraging. The house is oriented so as to give protection from the strongest winds and also a wide outlook, which I think is one of his requirements, and at the same time, it is fairly well concealed by foliage. It is large enough so that he can flatten his tail vertically up against the wall.

After seeing him in his roost, always with a support for his tail, it is believed that tail support also forms a part of his specifications for a suitable resting place.

12 M. As usual, after the first consequential rain, the flying ants (termites?) are coming from the ground in large numbers.

Brownie has selected one favorable spot where he is gobbling them as fast as he can and is driving off the other birds when they poach upon his preserve. The others interested are: Brown and Spotted

Towhees, Golden-crowned and Gambel sparrows and another thrasher (Bb)

Bb is getting more shy and is seen less. (Due to B's chasing?)

6:05 P.M. At 6:15 I stopped at the Scamell's--no signs of Rhody in his usual roost or in the house. I thought he would be in the house at my place, and was already gloating in advance of my success, but he was not there either. Mrs. Scamell said he had come early and run off along the fence and Dr. Scamell pointed him out to me near the top of a Canary Island pine in his back garden, comfortably stowed away for the night. To get there he has to brave the dog and the cat.

Oct. 23rd.

Brownie sang and called at intervals during the early morning hours. In the afternoon he loafed and sang sub-song for long periods at a time.

Rhody, did not get up until after 10:0'clock, the Scamells report. This is disgraceful.

Brownie continues to occupy the nest at night. Even when it was dripping wet after the rain.

At 5:45P.M., long after the thrashers' bedtime, a thrasher believed to be Nova flushed from the sparrow-hawk pine and went directly behind the screen where B roosts, seemingly settling there for the night. During the last few days, Nova, though not seen often except for a glimpse now and then, seems to keep in touch with her mate, but mostly out of sight in the bushes near him, since he is almost continuously talking to her when not otherwise engaged.

Rhody again chose the pine for a roost.

Sept. 24th.

Plenty of thrasher song up to about 8 A.M.

I made several visits to the pine to see if Rhody might be inclined to change his rising hour, up to 9:20 A.M. Although it was bright and warm and he was in full sun, he did not leave his roost

until sometime between that hour and 9:45 when he came and took worms offered him just across the street on my south bank. There was a gardener working in the Scamell back garden, beginng about 9:30, otherwise R might have stayed in bed longer.

At about 4:00 P.M. Rhody began to work his way ~~from~~ through the orchard in the general direction of his roost. He hunted most of the way.

At 4:20 he entered the Scamell garage and spent 4 minutes admiring himself in a hub-cap--toward the end tapping it gently. When he came out he chose his old roost in the oak, using the house as a part-way station. Whether it has any significance, I do not know, but when I have accompanied him, he has always gone to the oak. It was bright and warm (Temp. 66) and the sun was not due to set for nearly an hour.

I have thought that cloudy and chilly weather would make him go to roost early and get up late, but at the present time, with weather conditions quite the opposite, he is earlier to bed and later to rise than has been noted on the few cloudy days that have occurred since his roosting place was discovered.

His roosting period last night was apparently about 17 hours.

Bb was not seen today at all. A small heap of feathers and the last joints of two wings were found at the foot of the old oak, and might have been all that was left either of a thrasher or a brown towhee; I was unable to determine which, but probabilities point to the towhee.

Oct. 25th.

Early song as usual.

No Bb.

Brownie and Nova both accounted for and frequently seen; B using the nest occasionally for resting and singing, and sleeping at night.

Hawks

Several hawk raids during the day, and most birds concealed for considerable periods, nervous and timid.

Rhody--like Brownie--also scans the sky for predators and can

see them when they are small specks in the distance, as I have determined by watching him.

He continues to sleep in the small oak, having evidently decided against the pine. He does not use either of the houses.

Oct. 26th.

Yesterday's notes fit today exactly, with the addition that Rhody got up at 9:45 and one hawk flew over my head when I was sitting at the oval law and could not have cleared me by more than four feet, due to branches. Also a hermit thrush found eaten by some creature.

⁷
Oct. 26th.

Early morning thrasher song as usual.

No Bb.

More hawks.

The thrashers held another one of their meetings about 200 yards due east in the morning, and a confusion of thrasher sounds emerged for perhaps an hour. On Brownie's return, he occupied the nest for a long time, singing softly.

A little after noon Rhody put on a splendid exhibition of "mirror-dancing" for the benefit of young Donald Brock, who brought a mouse for him. R did not leave the place until it was time to start for his roost.

At about 4:10 P.M., by following his gaze from where he was sitting about 3 feet from the ground in an acacia, I located a sharp-shinned (or Cooper) hawk but 50 feet from him. The hawk flew and, almost immediately, there was a confused panic amongst some quail off in the direction toward which he had flown.

I walked up to Rhody and offered him a dead mouse. He watched my feet as I approached, but did not flinch, stretched forth his neck and gobbled the mouse.

At 4:20 (I was sitting on the ground about six feet from him) he began to get drowsy and gradually began working in the general di-

rection of his roost. To cover the distance, about 200 yards, required just 50 minutes, as he had to drink, dust, see what the thrashers were talking about in the bushes in the glade; the quail ditto; also the brown towhees, golden-crowned sparrows and the wren-tits, at various points. He sneaked up noiselessly on all the bushes where these birds were along his route and watched them curiously without offering to molest any of them. Just before he started this walk two plain titmice had investigated him where he sat in the acacia, approaching to about four feet from him, scolding. Strangely enough, although they stayed in his immediate vicinity for several minutes, he did not once look at them.

At 5:10 he was in his roost by the house in the oak. (Last night: 5:14--Mrs. S.)

When I got back Brownie was just stowing away in the nest.

In connection with the mirror dance it should have been noted that Rhody was much alarmed on catching sight of a stranger with me, and ran rapidly away as we approached him, not permitting us to get closer to him than about 100 feet, then disappearing in the bushes, and booing. We tried to "surround" him by getting on opposite sides of him and converging upon his supposed place of concealment, but he gave us the slip each time. Finally a ^{loud} ~~loud~~ boo from the glade betrayed his presence there, and warning Donald to stand still and keep his distance (about 25 yards) while I approached Rhody and tried to calm him down, we put the plan in effect. Rhody was up in a low tree, I found, about 6 feet from the ground. He let me come up to him, but boomed and rattled his beak repeatedly and seemed much excited. It was exactly as if he were reproaching me for appearing suddenly with a stranger. He slipped into the bushes headed toward the cage, entered it, saw the mirror and after that, forgot all about our presence and put on the show already noted.

He is very decidedly afraid of strangers and when one is present,

his suspicion extends to me as well.

Oct. 27th.

A foggy morning did not interfere with thrasher song, and Brownie sang, mostly quarter song, all day. There was never a time during the day when I could not locate him by sound alone. This is unusual. He was perfectly friendly, but indifferent to offers of worms. He would permit me to sit on the ground 6 to 10 feet away, but would not come for worms (except once) and would not interrupt his song. Whenever he fell to digging, he still sang. His taste ran to angle-worms for some unknown reason, though some he rejected. Whenever he stopped singing, he talked; at such times it invariably developed that Nova was near and she came out boldly in the open and dug with him in my presence a couple of times. Unusual for her. (There is a bare possibility that it may have been another bird--I could not get a very good look at her). I tried several times to get him to whistle his bugle call (Song A) in my presence, but he would not do it until I left him. This happened so often that it appeared intentional.

At 3 P.M. Brownie, Nova and Rhody were all in the glade, B keeping up his song in the bushes about 6 to 10 feet in Rhody's rear. I observed this for about 45 minutes, Rhody standing still most of the time, appearing to listen to B. He then decided to see what the other birds had to offer in the way of amusement and began to stalk them, ignoring B, but including the quail. He delivered several attacks, which I think were sham, for they were never carried to a conclusion and did not cause much alarm; probably only play.

Earlier in the day I placed the mirror flat on the ground to note his reaction to it in that position. He must have passed over it once on his way into the cage when I was not there, so I did not observe his first "impressions". However, I was on hand when he made his next visit to the cage; he passed by it with a casual glance at it. When he finally came out again, I could tell that he saw something

in it, probably a branch of a tree, for he stopped and looked at it curiously, then gazed into it, but at such an angle that it is doubtful if he saw any portion of himself. He then wiped his bill carefully along the inner edge of the frame. If he was looking along his bill he must have seen at least a reflection of its tip, but nothing whatever happened. I got the impression that, in the horizontal position, the mirror might appear to him merely as a pool of water, and therefore nothing to be wonder^{ed} at, even if his own reflection did show in it to a certain extent. This experiment will be repeated.

Oct. 29th.

Not much early song, but Brownie, later in the forenoon, started his undersong and kept it up almost without cessation until his bedtime. Even when he saw Rhody apparently stalking him, he continued. The relations of these two birds are curious. Rhody is plainly interested in Brownie and will steal up to him silently from a distance as much as 50 feet, stopping frequently and appearing to listen to the song. B will tolerate him within about 6 feet and will not move away, if Rhody stops there as he usually does, and continue his song. If Rhody makes a rush at him, which he occasionally does in a not very convincing manner, B simply moves off a little and R stops. B continues his song. When R goes off a few feet and sits quietly, only moving his head (a thing which he does frequently a half hour or more at a time) B seems to regard him as a part of the landscape and moves about without appearing to see Rhody at all, but it is noted that he does not go closer, intentionally, than about 6 feet.

This afternoon about 3 o'clock, Rhody stole quietly into the glade where B was singing on the ground. There were also quail, wren tits, the two kinds of towhees in and out and on the bushes and flickers up in the old oak part of the time. None of these birds appeared to regard R as especially dangerous, though somewhat shy of him. A

sparrow-hawk flew overhead with its loudblee, clee,clee, and all the birds sought cover, except R who was momentarily startled, but recovered instantly and began preening. The birds do not regard him as they do a hawk, even a sparrow-hawk.

Rhody in going through the brush is almost absolutely noiseless; by far the most silent of all the birds here. I can usually hear B or any of the other birds approaching me; but R is a ghost.

This morning I watched him hunting (a very leisurely process for him) outside the western fence (his usual morning territory) and about 75 feet away. I tried to attract him, but he would not come, so busied myself with training a vine on the fence--not a noisy job--in fact a silent one. I happened to look through the fence and there was R 3 feet away looking at me, not having made a sound coming through the brush and dry grass. He opened his mouth wide enough to emit a roar, but only the smallest sort of a whine issued. (One of his few characteristic vocal sounds). He was pleased to poke his bill through the wire mesh to take worms from my fingers as long as they were offered and waited patiently for more after I got tired of giving them to him.

I set the mirror again for him near the cage entrance; this time not quite horizontally placed, so that he would be sure to see himself if he passed within say three inches of it. When he came he saw himself at once, but, although he pecked his reflection, he did not get excited, and was far more interested in the meat and the birds in the other compartments of the cage.

Thus it appears that the intensity of his excitement is a function of the angle at which the mirror is displaced from the horizontal! Zero when horizontal, maximum when vertical. Tentatively:

$$I = f(\sin \varphi)$$

Where I equals the intensity and φ is the angle with the horizontal!

Oct. 30th.

About the same as yesterday.

I released a live mouse in front of Rhody, in the orchard. He chased it and caught it in a few steps. The mouse squealed and he dropped it. It went through the fence. Rhody quickly found an opening under the fence and caught the mouse again easily. One squeeze completely disabled it. R then put it on the ground to give it a chance to run again, but it could not. He then brought it back through the hole under the fence and swallowed it whole.

Oct. 31st.

The second rain of more than 0.05 inches since July 1st. began falling during the night.

At 9 A.M. it was raining hard and I went down to see how Rhody was faring. He was in bed looking pretty wet on top, dry below and, doubtless, dry beneath his feathers.

At 9:15 he came down, ran across the street toward his regular morning hunting ground, and as the bank was wet and slippery, took off from the street and sailed upward to the top of the bank, at that point about 6 feet high. He did not need to flap his wings.

R and salamander. An hour or two later he was near my west fence. I showed him a salamander (newt, water-dog) which I had in a wide-necked bottle. He was about 15 feet away on the other side of the fence, but quickly showed interest, came through the fence and reached down into the bottle which I held in my hand and pulled out the newt. He went through his regular lizard and snake performance, then swallowed it whole.

Later in the day he performed his mirror dance and got so excited that I removed the mirror.

B and nest. It cleared before noon and B went up to his nest for a long stay. When he left I placed a ladder and examined it.

There was an acorn in the nest. Usually all such foreign bodies

are promptly removed by the thrashers and I wondered if the poor fellow has been hovering it hoping for a miracle.

Roof for B's nest. A roof of "flexoglas" (fly screen glazed with cellulose acetate) was installed over the nest. At 4:45 B came and took his place in the nest without hesitation.

Nov. 1st.

Early song.

There was a lot of early song, ceasing about 7:30 A.M.

I tried to get some close-ups of Rhody sunning his back this forenoon, but it was one of his most active mornings. Whenever I managed to get in proper position (He was out hunting in the field) he always discovered something interesting elsewhere. First it was a Jerusalem cricket, then a centipede, both of which he ate. The action was too quick for me to get set up. Next it was something down in a swale a hundred yards away. He made a fine flight down into it and glided up the far side. A sparrow-hawk flew out of it and ground squirrels were momentarily startled. He ran up the hill in the direction of the hawk, perched on the top of a rock and seemed to be looking for the hawk. It returned and swooped down over his head, perhaps 20 feet above it, then lit on the roof of a house. Rhody next made a swift dash of about a hundred yards parallel to the street, through the shrubbery, flushing birds from each group of bushes as he passed beneath. This brought him back near me. When I had him well in focus about 15 feet away with a telephoto lens, he suddenly decided to climb a eucalyptus tree, went up about 15 feet and composed himself for a good rest, looking off over the wide spread view. To get him down I exhibited a very large mouse, which he came and got; ate it, then up another tree for a real rest, after a thorough preening. He was about 8 feet above the ground. He puffed himself out so that his feet were entirely concealed and his feathers completely enveloped the limb upon which he sat. It looked as if the limb stuck into him on one side and came out the other as if he had

been neatly skewered. I waited over an hour for him to come down, but the mouse-centipede-cricket luncheon (or breakfast) and his comfortable perch, together with (probably) ample food earlier, made a combination which favored repose, so I left him there at 12:40, perfectly contented with affairs as they were.

About 3 P.M., Rhody, after cavorting about in and out of the cage, studying the magpies and flirting with them, bethought himself of the mirror, as evidenced by what appeared to be a search for it in the place where he has usually seen it. When I replaced it, he ^{directly} went to it immediately from a point outside the cage where he could not have seen his reflection, showing that he had formed definite associations with it, which attracted him to it. He lost no time in getting into action. Again he was "trapped". After 15 minutes or so I took it away from him to save both his bill and his sanity. He then transferred his attentions to the magpies and the mocking-bird and in the process demonstrated that he not only is capable of upward flight, but also of sharp turns in the air and accurate landings.

The temporary cage is shaped in plan like a capital letter L. The longer arm is 12 feet long and the shorter 6 feet. It is about 7 feet high inside. There is a door at each end. He suddenly flew horizontally, without a preliminary run, about 7 feet, then turned abruptly at right angles to the left, in the air, and flew upward about 6 feet at an angle steeper than 60 degrees and landed on the top of an open door accurately, where ^{he} had only 4 inches of head-room and about 6 inches of margin in a horizontal direction. (From this point he got a better view of the birds in the two cages, and I suppose that was his object). All this was done with precision--in a confined space--without accidental contact with anything. (The upward angle actually worked out at 63.4 degrees based on the known dimensions of the space and the course of his flight).

This was "earning" or "gaining" flight, of which Dawson says the road-runner is incapable. I was glad to get this specific demonstration, since the area of his wings always "looked" ample to me, even more liberal than that of the thrashers, though, of course, it can only be checked by actual weights and measurements.

After he had calmed down, but still appeared to be looking for the mirror (or the mysterious bird) I put the mirror in another place outside the cage, this time perfectly horizontally. When he saw it from a few yards away he went directly to it--showing that he probably recognized it even in this position. He then proceeded to disprove the application of my tentative formula on page 823, for he again performed about and above it, though with somewhat less ardor[^] than with the mirror disposed vertically. Instead of pecking at his image fairly hard, he was more inclined to nibble at it, though his display of plumage was good. In some respect it was more interesting in that he walked about the glass, permitting his display to be viewed at all angles.

All of this consumed more than an hour. After this he had to see what Brownie and the other birds (especially the wren-tits) were doing, which required another half hour or so, and a similar lapse of time covered his leisurely approach to his roost. Somewhat before 5 he was tucked in for the night.

The local activities of the thrashers are at present confined to mostly early morning song by B, occasional occupancy of the nest by him, digging and long sub-songs, with occasional bursts of full song and talks with Nova.

Nov. 2nd.

Early thrasher song about as usual, ending about 8:30.

About 11:30 Rhody entered the cage and immediately became much interested in the birds in the other compartments, watching them fly back and forth intently and trying to get into first one and then the other. He had no interest in food whatsoever and I believe his

visit was inspired by curiosity and a desire to repeat former pleasurable experiences. I let him into the magpie cage to see what he would do about it. He became frightened, watched the magpies closely, avoided them and kept himself in a defensive attitude with bill pointed toward them. All three became restless and Rhody wanted to get out, but could not find the way. Finally all of them calmed down and Rhody discovered the door. I thought he would bolt after his unpleasant experience and be shy for a day or two, but as soon as he was outside the door he was completely normal, saw the mirror lying flat on the ground, flirted about it a little, then came over to me at the camera and ate meal-worms placidly. A mouse which I offered him did not interest him. When I placed the mouse and a worm on the ground beside me, he deliberately chose the worm. For the next half hour or so his time was divided principally between the mirror and the interior of the temporary cage where he again became absorbed in watching the birds and trying to get in with the magpies again.

At 1:30 when I went out there again, he was near the cage and again repeated his earlier actions, except that this time he was not allowed to go in with the magpies. He did not touch the meat, would have nothing to do with the mouse, but he did pick up a kinglet that I found dead this morning and left in the cage. He picked the larger feathers off and swallowed it before I could get a photographic record of the action.

Nov. 3rd.

The usual early morning thrasher singing; also customary activities throughout the day, followed by B's going to sleep in the nest for the night, under the new roof.

Rhody's behavior normal, included his mirror dance, which he evidently looks forward to.

Nov. 4th.

More singing during the early morning hours than has occurred for

several days. It was heard about the house until about 8:15, then ceased, and was then heard off to the east, where it continued for a long time, but of different character entirely; probably not B. This song was rapidly uttered, of higher pitch and contained more short i sounds, as in yip, with few of the usual thrasher phrases heard here.

Hawks were persistently about the place, as they have been now for several weeks, and the effect is very noticeable on the birds. Even Brownie is much more shy about coming out of the bushes.

Rhody achieved a record performance by staying in bed until 10:25 A.M. At that time he came down to get a mouse which I offered him, otherwise there seemed to be no good reason why he should not have remained there indefinitely.

During the afternoon he repeatedly visited the cage, sometimes only to play with the "mirror bird".

Nov. 5th.

Early song as usual.

A hawk raid about 10 A.M.

About 10:30 Rhody who was taking worms from me at the side-walk to the west, suddenly bolted for the bushes, after staring at them intently. A humming-bird was the attraction, and a pair appeared and made swooping buzzes over his head, but he lost interest quickly.

Rhody's extraordinary
resistance at mirror.

At 12:35 P.M. Rhody, who had just come up from the lot to the west, ran to the mirror and commenced his performance. I went in to lunch, and at

1:00 returned to find him still at it.

1:34. He was still at it, using new tactics which consisted in running in and out of the cage by the mirror without stopping, pausing a couple of feet beyond, then repeating in reverse order. This was varied by what appeared to be short searches for his double behind the cage, inside the temporary cage and in the small closet-like house which connects the magpie and mocking-bird cages.

He paused to swallow a large piece of meat, then took a 5 minutes rest in the shade and the breeze outside the cage. (Temp. 70)

1:39 Work resumed in pecking the mirror for 5 minutes, with short searches. In doing this, he does not raise his crest, but the colors back of his eyes are displayed. He looks pleasant and alert, not very excited, eyes round as saucers, much interested. I sat at about 14 feet distance.

1:44 Began rest in breeze and shade 6 feet from mirror, back to wind which was strong enough to ruffle his feathers. 8 feet from me.

1:50 Moved out to get a little sun, but still in breeze.

1:57 Came for drink 5 feet from me. Thrusts bill into water beyond nostrils and wets feathers nearly to eyes.

1:59 Drinking finished and back to mirror; gave it one tap and stood quietly by.

2:07½ Pecking resumed.

2:13½ New tactics resumed. (I.e. running back and forth past the glass roughly in an arc about 6 feet long). He makes no vocal sound.

(These notes made on the spot in pencil. Time accurate to nearest half minute).

2:11 He stumbled and bumped his chin on the platform edge while jumping up to it. Seems to think at the end of the arcs. Repeatedly extends run to point inside cage where he can fly up to a window in closed portion of mocking-bird's cage. Seems to regard that bird as in some way connected with the disappearance of his reflection and stares at him fixedly. Several times appeared resolved to quit, running off 15 or 20 feet but always returning.

2:22 Has another drink, thrusts bill in almost up to eyes.

2:27½ Back on job with "new" tactics. Abandons and falls back upon pecking.

2:34½ Retires to shade and breeze to rest, facing breeze this time. (The mirror is in the lee of the cage in the sun). 8 feet away.

2:34 Back on job, mixed tactics ("New" and pecking).

2:34 At end of arcs much looking about. Looks curiously at Baccharis seeds floating about in air in lee of cage. Is aware of external events, not being obsessed by his personal doings.

2:47 Spots a hawk high up in the sky; stops mirror dance to watch it, remaining perfectly stationary, not appearing to be afraid.

2:50½ Back to work with occasional glances at sky.

2:50½ Still engaged with mirror, but making more frequent observations on outside affairs and actions of birds in the cage; also occasional short rest periods in front of the mirror, when he looks more calmly at himself and "analytically".

2:52 Searches for other bird becoming a little more thorough. Seems

at times actually trying to think it out.

- 2:58 Attention momentarily attracted from mirror to something in line with me and stares fixedly at it without moving until:
- 2:59½ I look behind me and see nothing unusual.
- 3:10 Delivery truck stops 50 feet from me and man comes to me, but Rhody continues his pecking at the mirror.
- 3:13 Man and truck go. R stays, still busy.
- 3:15 I move up to about 3 feet from mirror, R does not change tactics.
- 3:20 I return to original location.
- 3:27 R takes 1 minute rest.
- 3:28 Goes to far end of cage outside.
- 3:29 Goes 30 feet to south to gaze down into the driveway and the street and rest in shade (out of the wind).
- 3:35 I thought this was the wind-up, but Rhody seems to have a time-sense and was back again at the mirror at exactly a 3 hour lapse of time since his arrival there.
- 3:35½ I took mirror away, as I had had enough.
- 3:36 Rhody came out of cage and dusted.
- 3:37 Goes back and wonders where mirror has gone. He comes over toward me (for a drink?) but sees mirror face up on the ground at my feet and looks at himself without pecking. This had not been intended as a test.
- 3:38 Another truck comes and Rhody wanders off unhurriedly toward the glade, gets a drink there at
- 3:40 and goes down in where B is singing sub-song. B comes to me for worms, unperturbed, but R was not seen.

Nov. 6th.

The usual early morning song.

Brownie, in the old oak, Nova accounted for in the glade, began full song again about 9 o'clock. This started the high-pitched song off to the east, so the author was neither B nor N. Soon still another song was heard a long way off to the south west.

A little later, B and N absent at the time, the high pitched song and one like B's were heard at the same time off to the east. Investigation disclosed B and N off there together in a pine tree and

a third thrasher still more distant. This time Nova was almost certainly singing the same type of high-pitched song. After a half hour or so, both birds worked their way back home, B taking the lead and N following promptly.

Nb has not, with certainty, been seen since last recorded in these notes. As a consequence, no further data have been secured on the suspected change of iris color.

Rhody has now become a mirror addict, visiting the cage for the specific purpose of cavorting about it. He now also begins to take notice of other objects reflected in it. He remains in or near the cage much longer now.

About 5 P.M. Mr. Brock turned over to me a rail (probably the Virginia Rail) brought to his store by a boy scout that had just caught it in front of an upholstery shop a few doors up the street. The automobile traffic on this street is heavy, and it is a curious place to find such a bird. It was put in the mocking-bird cage and will be banded by Mr. Cain and eventually released.

Nov. 7th.

Less early song than usual.

Rhody and the rail. It did not take Rhody long to discover the rail on one of his trips to the mirror. The rail came within a couple of inches of the wire and Rhody crouched down, spread his wings and tail, approached to within six inches and rattled his beak. The rail was not at all disturbed. Rhody repeatedly showed his extreme interest in the bird each time he visited the cage.

The rail. The rail is not much afraid of me. When I go into the cage it retreats behind a bush at first but comes out soon and is glad to pick up and eat worms (angle worms) tossed to it. (The cage is 6 feet square). It has already approached within about 2 feet of my head for a worm while I am inside, and closer when I am outside.

It likes to wade in the bathing pool and pick up worms dropped

into it. Worms dropped on the ground are sometimes taken to the pool by it and washed before being swallowed. If the worms are rather large to be swallowed whole, it breaks them in two by a sidewise flirt of the bill in the air--like snapping a whip. It seems to work without fail.

Nov. 8th.

Little full song this morning; the birds seem hawk-shy, although it has not interfered with Brownie's sub-song.

Rail takes worms from hand. The rail is already tame enough to come and take worms from my hand. When I offered them to him through the wires he came without hesitation and took them, showing no signs of fear.

Takes meat, but drops it. He also took a piece of meat from me but would not eat it. It is curious how a wild bird, once it accepts food from one, soon learns that anything offered it is worth investigation at least.

Gets tamer rapidly. 11:15 A.M. When the rail saw me approaching the cage, just now, he came to the wire, clucking softly, and took angle-worms from my fingers as fast as I could offer them, making due allowance for the time required by him to wash the dirtiest ones in the pool. He even reached out through the wire and pecked my fingers when I was too slow to suit him. I will try him on slugs and snails. If he eats these creatures he should be a valuable garden "accessory".

Nov. 9th.

Little early morning full song about the place and birds still shy; on account of hawks presumably.

The rail is getting so that he watches for me to come and give him worms.

Rhody ran well to schedule, including his mirror dance.

Nov. 10th.

No early song heard at all and most birds kept well out of sight.

E would come out of the bushes for a worm at a time, shyly, and run back in again, talking to Nova.

Rhody was still in bed at 9:20 A.M. He was seen leaving the vicinity of the tree at 9:45.

He taps on the dining room windows of the Scamell house so much that Mrs. Scamell has to see that they receive special attention, and threatens to sue me for damages caused by "my" bird. My position in the matter is that the state of California expressly stipulates in permits granted for the keeping of wild birds in captivity, that title to them remains in the state, hence no liability rests with me; especially now that Rhody is a free bird.

About noon a Cooper hawk caught one of the pigeons that comes here. ^{it} It was able to raise about five feet from the ground and fly perhaps 75 feet with it, mostly down hill. On being pursued the pigeon was abandoned. We fastened it to the top of a fence post, and in about a half an hour the hawk was on it eating it, and was shot. It proved to be an immature Cooper hawk, probably a male, and, while neither bird was weighed, I think there is little doubt of the pigeon's being at least as heavy as the hawk.

The hawk had four bands across its tail beyond the coverts and one beneath the coverts. (Hoffmann says 3).

How voice sound While reaching for a mouse which I was holding by the tail, **Rhody** Rhody repeatedly fell short of seizing it and each time emitted a soft, low-pitched ooh! that was scarcely audible.

Rail's voice. Once today when the rail was washing his food in the pool he uttered a series of soft, low, musical notes, difficult to describe.

Rail's food. He is tremendously fond of angle-worms and will stop eating them only when he is practically filled up, as evidenced by his swallowing motions continuing long after the worm has disappeared.

Shrimps, which he refused yesterday, were acceptable in limited quantity, and also chopped meat (Hamburger steak). He likes to put this in the pool and let it become dispersed and then pick it out a small piece at a time. He appears to like an abundance of water

simultaneously with his food.

Eats slugs. He will eat small, gray slugs, but the sticky slime which they exude annoys him.

Nov. 11th.

A little early morning song and full song by Brownie about noon. He also sat in the nest frequently and for long periods of time, as if incubating. Perhaps he thinks that if he does his share, the hoped for miracle will happen. Perhaps also the acorn is still in the nest serving the purpose of the classic door-knob that beguiles the domestic hen. If so, it seems odd to have the male bird behave in this way. Nova is still here, but does not seem to go to the nest. A pleasing feature of B's "incubation" is his frequent under-song from the nest.

Hawks are still making frequent raids. I saw feathers floating down from the oak near the front door. A hawk flew out. I knocked feathers out of it and a second hawk flew out. More feathers were also found at the north side of the house etc. These birds are also raiding Dr. Reynolds' place and killing birds.

Phoebe accepted mice from me to day, carried them off, but would not eat them. Too stale, or not hungry?

Some early morning song--in a heavy fog.

Phoebe was not in bed at 9 A.M. Weather does not seem to affect his sleeping hours. This was a morning when one might reasonably expect a bird of his habits to get up late.

Blue-birds. For a week or two Western Blue-birds have been flying overhead in pairs and small flocks, both in the morning and the afternoon. Singularly enough, all flights noted have been north or nearly so; the opposite of what one would expect.

Howe's birds
continue.

These birds were raiding in the morning fog and struck down a pigeon at this place, but did not carry it off. The pigeon was wounded about the head and underneath one wing--could neither fly nor walk. and was unable to maintain its balance on attempting to stand. It was put in a small cage for protection and observation.

Blue-birds.

Contrary to preceding note, blue-birds were observed flying in a southerly direction . There is supposed to be a storm approaching from the north-west. Perhaps this has something to do with it.

The rail.

The rail has taken to sitting on top of a shrub in the cage, about 4 feet above the ground. As it can not clasp the limbs with its feet, it has to select a place where there ^{are} several branches, where it stands on one foot, swaying more or less. When offered food while roosting it reaches for it promptly with eager cluckings.

Nov. 13th.

A lot of early morning song by B.

Other birds performing as usual.

Nov. 14th.

The usual early song.

A fairly strong wind from the south (Temp. 64 at 9 A.M.) the usual precursor of a storm from the opposite direction, at this time of year.

The pigeon seems to be recovering and takes food, but does not move about, standing fixedly in one place.

10:A.M. A flock of 12 blue-birds just seen moving south against the wind. Have they knowledge of an approaching storm? Heavy clouds cover the sky.

Heavy rain during the night.

Nov. 15th.

The usual early singing; rain ceased.

At 10:00 A.M. Rhody was still in bed, having spent the night in his alternative roost in the pine. This is only the third time.

His bouts with the mirror are now shorter, as if he were beginning to realize that they have resulted in nothing conclusive.

He went to bed at 4:50 P.M., in the oak. I accompanied him from the orchard.

I am to show the thrasher, road-runner and condor motion pictures at the Cooper Club tonight. Three hawk raids seen today here.

Nov. 16th.

Usual early song, hawk raids and Rhody running true to form.

Nov. 17th.

Ditto.

Made a nest for the rail on top of the bush in the cage, about the size and shape of a soup plate. In less than half an hour he flew up to it and stood on one leg in it for an indefinite period. He uses it frequently in this way and looks like the herons (on a small scale) that one sees in their rookeries.

Nov. 18th.
Heavy rain during the night, beginning again about 10 A.M. accompanied by heavy southerly winds. Before this time B was singing continuously his sub-song, full of imitations, in the glade. When the rain began to fall heavily he disappeared.

Rhody went to the cage about noon for meat. It was raining hard and he practically ignored the mirror. He retired to the lee of the trunk of the old oak for protection, looking thoroughly uncomfortable.

3:30 P.M. Still raining heavily--wind strong enough to break off small branches from the pines. Rhody has spent most of his time since last note, sitting on the cross piece under a garden bench. He eagerly receives meal-worms and meat.

The wounded pigeon was released yesterday, but instead of joining the flock, insisted on returning to the cage where he had such an easy time of it.

He repeatedly tried his wings without rising from the ground and has been rearranging the blood caked feathers underneath his wing.

At 4:40, after a torrential rain, Brownie was found snugly ensconced in his nest, well protected by the roof. Rhody was not in sight and it was too wet to look him up. The rail, also, was in his man made nest. Rhody's refusal to use either of the houses made for him is puzzling. I am inclined to think that his outlook when in them is too restricted. He knows all about them, having tried them both, yet he stood within ten feet of the one in the orchard for a long time, out in the open, with the rain streaming off of his back and dripping from his bill and would have nothing to do with it.

Nov. 19th.

Usual early morning song.

One hard shower in the forenoon, then signs of clearing.

Rhody wandering about disconsolately during the day when seen, retiring to the pine tree, this time, for the night.

Nov. 20th.

Morning song was not heard until nearly 7 o'clock, the sun rising clear--a sea of fog below reaching to almost precisely the elevation of the ground floor of the house.

Rhody had already visited the cage when I went out and was found about 10 A.M. sunning himself, in a small redwood tree about 60 feet away. After a half hour he went to the top of the cage and paid his respects to the inmates, then wandered over to me where I was handing meal-worms to Brownie, and got his share, B going up to his nest.

Inspection showed Brownie actually working in his nest arranging the interior, Rhody searching for some creature in a pile of boards near the dormitory tree.

I went away and was feeding the pigeons about 30 feet from the tree, when I heard Brownie uttering harsh, angry sounds, and the

thrashing of wings in the direction of the nest--evidently a combat of some sort in which one of the contestants was Brownie and the other a much larger bird. I hurried up a ladder leaning against the wind-screen, and as expected, found Rhody at the nest and B trying to drive him away. They separated, R coming up to perch on the screen near me and B, much disturbed, on a nearby branch. Rhody finally flew to the ground with a parting, rattling boo and B returned to the nest and began sub-song.

The scolding of wren-tits, bush-tits and wrens indicated that Rhody could be found in the glade, and I found him there innocently preening, oblivious to the protests of the smaller birds that had gathered about him in the surrounding thicket. I stood 6 feet from him, watching the operation. He oiled each tail feather individually, his wing coverts and flight feathers. He rubbed the side of his head on his oil gland and then rubbed it on as much of his neck as he could reach and on his breast and sides. He made a thorough job of it, and at about 11 A.M. wandered off to the cage slowly, and at 11:25 was still playing about it, occasionally inspecting himself, rather casually, in the mirror.

It is quite clear that I now have a Rhody-Brownie problem on my hands.

Brownie's nest is well shaped and partly lined, but less compact than a completed structure. The acorn is no longer in it.

About 12M. Rhody went up into a large ceanothus and settled for a good rest about 2 feet from one of his houses, facing it. While awaiting developments, I had no difficulty in finding seven lizards in plain sight on a wall, none more than 40 feet from him, and 3 within 15; so he has not yet consumed the local supply.

1:10 P.M. Rhody is still sitting in exactly the same spot. I know of no other bird that has developed to a like extent the capacity for doing nothing so thoroughly and over such long periods of time.

The rail
 1:20 P.M. The rail has just had a good bath, thus classifying himself amongst the bathers.

I find that he sleeps at night in the nest made for him. At 1:30 P.M., as I left for an engagement, Rhody was still at the same place.

From the episode of Rhody and Brownie this morning, it seems clear that:

(a) Brownie regards his November nest as something more than a place to roost in at night. If Nova's attitude were the same, there would undoubtedly be a December brood.

(b) Rhody considers a nest of any kind as worth investigating at any time of year, regardless of normal nesting seasons, and does not allow any preconceived notions he may have as to the proper time to build nests to influence his judgment!

Nov. 20-21st
 A flock of 20 blue-birds was seen moving north again. No storm in the offing? Or perhaps these are only local movements.

Nov. 21st.

Early morning song as usual; for the most part it consisted of short, isolated phrases of full song, seemingly in the nature of calls to other thrashers.

Brownie occupied his nest occasionally during the day, but his mate was not seen to join him there, though, judged by his talk, not far away. He went to bed in it about sundown as usual.

Nov. 22nd. to 27th. inclusive.

Every morning during this period, early song of the thrashers was heard.

Brownie continued to sleep in the nest at night and occasionally sang full song during the day. Under song could be heard at almost any time.

Nova continued to remain here, usually not far from Brownie, and talk between them was common; though usually taking the form of a

monologues by B.

Rhody remained on the job, spending most of the afternoons here, after coming for meat about noon. While he is still interested in his own reflection in the mirror, the novelty appears to be wearing off. He still sleeps in the same tree, but goes to bed earlier as the days shorten. On the 26th. his retiring time was 3:54 P.M., about an hour before sunset.

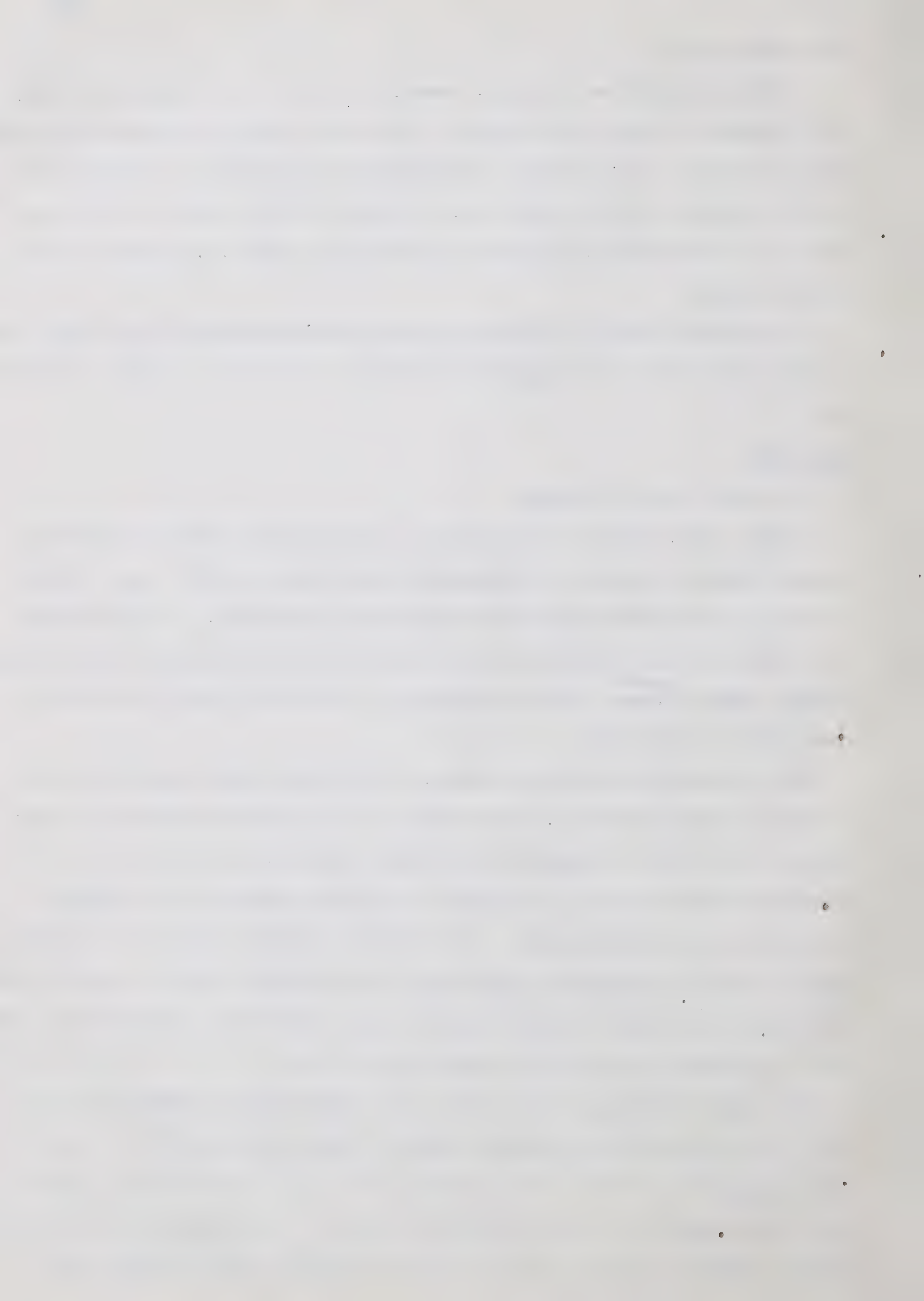
There have been no positive signs of Bb's presence for a long time, so that the matter of change in eye color in his case can not be followed up.

Nov. 28th.

The usual early singing.

About 1:30, Rhody, in the glade, apparently as soon as he saw me coming, began a series of ridiculous cavortings around a sage bush as if playing hide-and-seek with an invisible companion. I am inclined to think that these antics are associated with a feeling of well-being, as they seem to ^{occur} most often immediately after he has had (as on this occasion) a good meal.

As I passed through the orchard, a thrasher, first supposed to be Brownie a little nervous, approached me and took worms tossed to him; when I saw by his prominent superciliary stripe, the absence of a defective feather on his left wing, his smaller size and his general behavior that it was not B. Just then B, himself, came to evict him, and in the evolutions that followed, the stranger, stopped near me often and again got worms. I saw then that his irides were orange-brown like B's. B pressed the attack irregularly and the other bird avoided him easily, often sitting quietly near me. Nova finally joined the two, but took the part of a spectator only. When last seen the stranger was headed for the oval lawn, having evaded B. A few minutes later B appeared there evidently searching for him. I believe this bird to be Bb, returned to his place, and hence, judged by his tenacious and



appearance. I think, that if B had not stirred him up, he would have returned to his old allegiance. In any case the bird, the bird was not much afraid of me; less in fact than he was of B and it appears almost certain that he was at least one of a brood reared at this place. If it was Bb, then the change in his eye-color has taken place.

Nov. 29th.

Everything as usual.

Nov. 30th,

No early morning song heard at all.

This was a day of requent hawk raids; one unsuccessful one on a brown towhee terminated on the ground 40 feet from me.

Birds were scarce all day. There was not a sign of a thrasher of any kind, and not one was even heard, although I looked for them repeatedly, as late as 4:30 P.M.

Up until the same time there had been nothing seen of Rhody either, and he had not visited the cage for meat. (I looked in his roost then).

These are both highly unusual circumstances, attributable, probably to the hawks.

5:20 P.M. I went to Rhody's roost again at 5:10 and found him there. A few minutes later, I looked up at Brownie's nest. There he was.

Dec. 1st.

Although hawk raids continued with undiminished frequency, the day began with early song and all thrashers (including Bb ?) were frequently seen. Rhody also contributed his share to the scene.

Rhody positively will not abide the presence of strangers. He will start running as soon as he catches sight of them; yet Julio and I can walk up to him at the same time without disturbing him. He clearly makes a distinction between individuals. This was again demonstrated today when two young visitors wished to see him. Though they did not get near him, and approached carefully, he bolted down the driveway

Brownie again occupied the nest for considerable periods of time during the day.

At this time last year (also preceding and following) he and Greenie were carrying twigs into trees rather actively. Now that he has a nest, and Nova is not interested, there is no twig-carrying.

It will be interesting to see if the present nest will be used as the first one of next season.

B is doing a lot of under-singing these days, with occasional full song.

Dec. 2nd.

Hawk raids were observed to begin about 7 A.M. at which time quail and juncos were driven against the windows of the house.

Yet with all this and frequent raids during the day, there was early morning song followed by almost continuous under-song by B during the day, in which were many imitations.

Rhody was very friendly and bold, eating from my hand often., and not hesitating to come into the cage where I was feeding the rail. I pretended not to see his approach and he walked in behind me, mounted the stone on which I was sitting and took a piece of meat practically off of my coat-tails. As the meat had been hardened by the sun, he proceeded to "kill" it as he does a snake, by taking it by one hand and slapping it upon the ground.

Dec. 3rd.

Early song and hawk raids.

By referring to back notes, it appears that these raids may be expected to continue for several months, especially during the winter.

About 9:30 A.M. B came for worms, talking all the while as if to Nova, who was not visible. He then climbed the old oak and sang beginning with half song, working up to three-quarter, then to full. His object seemed to be to get Nova to come to him. If so, I saw no signs of definite results. While he was singing I moved to the

vicinity of the magpie cage, from which point I could watch him, the dormitory tree and vicinity, my object being to see if the feed of worms would stimulate nesting activity or cause him to visit the nest. While there I whistled his A song to see if he would respond; but his answer was to come and sit on my knee and finish the worms. He then tried to pull a branch off of a gooseberry bush, seemed to think of going to the nest; but finally fell to digging, accompanying himself with a soft song. Next he climbed a small oak, shook some of the twigs with his bill, then descended for more digging.

Dec. 4th.

Strong wind. A strong north wind and no early song heard, though I may have missed it.

Rhody comes Rhody, a hundred feet beyond the nest fence, in the bushes, responded to call, to call in a dignified manner as if to let me know that he was coming anyway. He reached through the wire for a worm at a time as long as they lasted. On my return with some meat, he was seen and heard across the street tapping on Mrs. Seamell's dining room window. He next chased a brown towhee out in the street, then headed for the cage to get his own meat. He is getting distinctly used to the mirror and treats it rather casually.

letting used to mirror. At about 3:10 B was singing from the dormitory tree, snugly stowed in his nest which swayed in the strong wind; although it is behind the screen, the branches project above it. (Temp. 62). I wonder if other male thrashers have family matters so constantly in mind as B appears to have.

B's defect- the feather. The defective feather is still present in his left wing and I never see him work on it.

Nova here. Nova is still often with him; but not at the nest.

Dec 5th.

Strong wind. 9:00A.M. A powerful north wind is roaring through the pines.

If there was early song, I probably could not have heard it.

B in glade. B in the glade, very meek, but singing nevertheless, nervous about the wind. Only the pulsation of his throat showed (at a distance of about 10 feet) that he was singing. (Temp. in shade 53, but warm in the sun and out of the wind). All birds in the lee of buildings, banks and shrubbery.

Rail in nest. One wonders whether the little rail, lying in his nest, comfortably dozing in the warm sun with his belly full of worms and Hamburger steak, appreciates his good fortune. He looks as if he did. He has been banded by Mr. Cain and will be released eventually. I dreaded a painful struggle on his part; but he took the operation philosophically. Several nights ago, as he lay in his nest, we pointed flash lights at him, and Mr. Cain lifted him out of the nest gently. He struggled mildly for a few seconds, then subsided. After banding he was replaced in the nest and stayed there peacefully.

Rhody eats About 10:30 I shot a sparrow (the first English sparrow that I have even had a chance to shoot at for several months). I looked up Rhody and found him in the orchard. He spent about 10 minutes in picking off most of the wing and tail feathers and about half of the body feathers. This was a very deliberate operation, as he paused frequently, to listen, as it seemed, to the sound of the wind and the singing of an Anna humming-bird about 15 feet from him. He contemplated an advance upon the latter, but gave it up. The sparrow, with all of its feathers, looked much larger than Rhody's head, but he swallowed it in somewhat less than a minute, with one pause at the critical point to rest. For two minutes he did not leave his place, then went to a convenient point to wipe the feathers off of his bill.

and mirror. 20 minutes later he came to the cage where I sat, giving the mirror only a few casual pecks each of five or six times when he passed it.

He did not take the meat. The sparrow was probably enough for the time being. If so, why did he go to the cage? It seems probable that interest in the birds inside and in the mirror formed at least a part of his motive.

Dec. 6th.

At 10:30 A.M. a female quail was sitting in Brownie's nest, apparently "frozen", though I saw no hawks about. I then looked up B to see what were his views on the hawk situation at the moment. However, he saw me first, and was seen running toward me at the oval lawn, casting apprehensive glances at all high points, and keeping close to the shrubbery. He selected safe vantage points for observation purposes, and when the worm idea became too strong, flew to my knee, from about 30 feet away; flying being the quickest way across the open space. I returned to the nest, thinking that B might go there after having worms (as he frequently does) hoping to see what he would do about the quail, who was still there after 20 minutes. However, he did not come, but entered the bushes. As I watched a hawk flew from the ground and entered the same clump of shrubbery, and as I approached it, flew to the glade. I returned with the gun, but could not get a shot at him. Strangely, Brownie was now perched high in the old oak singing full song with the hawk not over 50 feet away. It seems impossible for him to have been aware of the presence of that bird. The hawk flew north into one of the pines, but I could not find him. B continued his song indefinitely. Curiously, also, the quail were entering the glade, but not in panic, at the same time as the hawk. I could not see it well enough to tell whether it was a "shootworthy" one or not. Perhaps not, although the birds were concerned about some creature.

Rhody displays new accomplishment. I found Rhody at the west fence where he was fed yesterday morning. He soon crawled under it and came toward me. When he was within reach of my hand, I tried tossing worms to him"on the

quail in
B's nest.

indicates
hawk around.

When I saw

sings full
song in pres-
ence of hawk.

Rhody displays
new accomplish-
ment.

fly". He caught them neatly and swallowed them all in one movement.

R's accommo-
on of vision
and
coordination

This is a pretty good example of his rapid accommodation of vision and accurate coordination of movement. The quick flick of my hand ending at probably less than two feet from the end of his nose, usually, though not always, caused him to recoil somewhat. Notwithstanding this handicap, he caught them cleanly at this short distance. His movements were so quick that the eye could not follow them and he appeared to be catching them with his bill closed, which, of course, is impossible. It should be noted that I was squatted upon the ground and that my hand was about at the same level as his bill.

R's interest
in cage other
than food.

Later, when R came to the cage, where I was sitting waiting for him to appear, he passed right by the mirror and went in and got his meat. He then spent a long time looking at the magpies and the

Bright appear-
ance.

rail, round eyed and intensely interested, looking bright and intelligent. He seemed actually ^{to be} trying to puzzle it all out. He displayed once for the benefit of the rail, who regarded him phlegmatically.

Not so excited
mirror now

He went in and out of the cage several times and danced before the mirror, but not each time he passed it. He also spent quite a little time looking at himself in it calmly with his bill almost touching the glass. He also tried to get through the wire into the cage.

Display of
crest and colors
independent.

It was very noticeable that he is able to display ^{fully} all of the colors, blue white and red, back of his eye without raising his crest at all and, contrariwise, he can raise his crest fully without showing the colors ^{in the least}. Consequently, it is evident that he must have separate sets of muscles for controlling these two displays. This has been observed repeatedly, but I have not thought to record it before.

Dec. 7th.

Brownie was singing about 6 A.M., but by 7 o'clock had stopped, and for the rest of the day, until 5:20 P.M. in fact, not a thrash-

er of any kind was seen or heard about the place, though frequent search was made. There was not even one scrip during all that time. There were, however, hawks, even after sunset. They seem to have adopted the tactics of concealing themselves about the trees and shrubbery.

Shortly before sunset I began a series of visits to B's nest, and did not find him there until 5:20 (a half hour after sunset); 5 minutes before he was not there. It was so dark that I had to use a flash-light. I had just flushed a hawk between the two visits.

I wonder if B had reflected upon his over-boldness in the presence of a hawk yesterday and had gone to the opposite extreme.

Rhody behaved true to form throughout the day. When I first saw him in the morning he was about 100 feet west of my western fence, his head just showing above some low bushes. The first call started him in my direction and soon he was trotting toward me confidently for worms, catching them on the fly and taking them from my hand by reaching through the fence.

Later he showed that he can pass the mirror, though aware of its presence, on the way into the cage without pecking it; but on the way out he usually yields to temptation.

He still sleeps in the same place. (Max. Temp. 68).

Dec. 8th.

As regards Brownie, the day was an exact duplicate of yesterday, with the exception that he was found in his nest 5 minutes earlier, 5:15 P.M. I would like to know what is really at the bottom of this behavior. For two days now all I have seen of him is two glimpses of the under side of his tail by flashlight!

Yesterday Rhody came without invitation to watch us digging in the garden and gladly accepted angle-worms. The wren-tits scolded him all the time he was there and he watched them keenly.

Today he came to the oval lawn while I was trying to get an

English sparrow for him without success. He walked about my feet freely and when I went across the driveway and sat down at the steps, he trotted over and perched on a rock at my elbow with his head just clearing the gun barrel across my lap. He was intensely interested in the numerous birds about him, making short sallies toward them, but not going up into the bushes to get at them. While he was present the birds (golden-crowned and song sparrows, brown and spotted towhees and wren-tits) kept off the ground in his vicinity. The bush-tits, plain titmice, hummingbirds, purple finches and hermit thrushes were all aware of his presence, as reflected by their actions. None of them seemed particularly fearful of pursuit or capture, but were careful and watchful. While Rhody does eat small birds handed him, I doubt if he really goes out of his way to catch them.

Dec 9th.

Effect of 7:43 A.M. Due to the hills to the east, the first rays of the sun, which is scheduled to rise at 7:13 are just reaching here.

(Temp. outside 52).

Attempt to influence B's recent pro- At about 6:30 A.M. I happened to be awake and listened for thrasher sounds until about 7, but everything was quiet. I got the idea that if I should get in contact with B before he left in the morning, as he has done the last two days, I might succeed in altering his schedule. I then headed for his nest, everything in the thrasher world being still quiet in all directions. When about 100 feet from the nest, I heard one loud, clear musical phrase apparently coming from it. On arrival there at exactly 7:00 A.M., Brownie was seen in the act of rising in it. He looked down at me, then jumped up to the top of the wind screen and gave his bugle call (Song A) looking off to the south east. After a few more phrases he went to the old oak and sang full song beautifully, interspersing it with his bugle call. This started a high-pitched thrasher

Nova(?) answers from afar.

Others.

song about 250 yards to the south east which I assumed to come from Nova, based on previous observations. Also another off to the south west in the direction of Mr. W.F. Sampsons and another to the north east. Not one of these had been heard before Brownie. I went too the glade and B dropped down to me for worms. The other songs faded out. B alternated between my hand and the bushes about six feet away. In the bushes he sang sub-song in

B starts them again.

Nova(?) replies

which his bugle call was sounded very softly. He finally went up into the oak again and sang loudly. This started the bird off to the south east and the one to the south west. B continued to sing with fervor, looking south east. The song from there stopped

(?) stops.

Nova comes to B

and in a few moments, Nova appeared climbing up toward B. He

B scolds her. and pecks.

dropped down to meet her on a lower limb and scolded her harshly,

B responds.

pecking at her with open bill. She responded similarly and then they sat

~~there~~ for a few minutes quietly a couple of feet apart. B then

B leaves her.

dropped to the ground to eat from the dish of suet mixture.

B follows.

Nova followed and crouched by him, looking up in supplicating at-

B repeats.

titude with bill open. B turned his back on her and left to

They go to work.

drink and dig. Nova ate heartily from the dish (15 feet from me)

and then fell to digging also. It was now 7:40 and the day was

started with B and N both at home. The sun's rays were not yet in

the glade.

B not an early bird. From the foregoing it will appear that B is not an early

The local "spark plug" riser, at least by clock time. It looks, also, as if he were

the catalyst that induces thrasher activities in the neighborhood.

His calling of Nova followed by what appeared to be rather impolite

reception of her, and the cold shoulder, is one of the peculiar

habits often noted.

Will B stay home today?

It remains to be seen now whether B will again disappear for the day or whether he will stay here. In either case, of course, nothing will be definitely proved.

Experiment with
B.

At 9:45 Brownie was still at the glade and Nova in one of the low trees forming it. B was given all the worms he wanted in the expectation that he would either go up the old oak and sing or else go to the nest. I went off to find Rhody and give B time to make up his mind what to do.

Rhody

Rhody was not in his roost at 9:50. Mrs. Scamell called him and he poked his head up out of the bushes in his usual morning location west of my place and north across the street from the S Scamell's. He stood on the bank facing us and I went over and tossed worms up to him.

Outcome of ex-
periment is:
in nest.

In the meantime B had not sung again, but was found in the nest at 10:10.

At 10:45 he was still there, singing softly at intervals. This song was strongly reminiscient of the first immature attempts of the young thrasher; more than of B's own quarter song.

His quarter song earlier in the glade--I forgot to record at the time-- was made up almost entirely of recognisable full-song phrases.

Influence of
food.

This incident again suggests the strong influence which an ample food supply may have upon the normal behavior of these birds.

¹⁹⁴⁴
The Virginia? Rail.
(Characteristics)
of captive.

This little fellow in the cage with the young mockingbird has now become sybaritic in his habits, spending hours at a time lying or standing in his nest in the top of the pyracantha bush. (P. Yunnanensis). He is able to fly up into it directly at an angle of about 45 degrees. Its height from his take-off is about 5 feet. He also stands on top of the bush, but must occupy a place where there is at least one fork as he is unable to clasp a branch with his toes. When trying to move about on or in the bush, he is, for that reason, extremely awkward and unsteady and subject to falls. This is all the more noticeable because of

the contrast with his extreme stability while standing on one foot on a stable support such as the nest or the ground. In such a position he ^{can} perform all the complex operations of drying himself after a bath, preening and stretching without a wobble.

He is a thorough and conscientious bather, throwing the water upon his back with his neck and head and rubbing himself with the latter.

From my experience in hunting in the marshes south of here years ago I had learned to consider the rail as an exceptionably shy bird; but, as noted, this one became tame at once. Three days ago, while returning from the Oakland Air Port about 4:30 P.M., I saw a rail bathing in one of the narrow channels that wander about the marsh, stopped my car and went out to look at it. It permitted me to approach within 10 feet and then merely wandered off slowly and casually, taking perhaps 5 minutes to go 50 feet, and searching for food under the salicornia which overhung the bank in the meantime. It stopped there, and after watching for a time I left it in possession of the field. At no time did it make any attempt to conceal itself and I was in full view all of the time except for about the last hundred feet of my approach and my appearance then was necessarily sudden since there was no cover of any kind. It was a Virginia rail like the one in the cage to the last feather.

4:50 P.M. Well, whether my action had anything to do with it or not, Brownie stayed at home all day and could be located at any time. Much of his time was spent in sub-song and he was well-rewarded for staying on the job. Hawks were about, though not so many raids as usual. (Max. temp. 69; min. 52 (?)).

At exactly 5:09 Brownie settled in his nest for the night. Sunset, 4:50, temp. 60). Unlike Rhody, he does not make it a point to be in his roost before sunset.

Dec. 10th.

A wild rail
observed.

Not frighten-
ed at me.

B stays home.

B's retiring
time.

Dec. 10th.

The usual early song; Brownie staying home all day.

Rhody behaving according to form.

Dec. 11th.

Morning song first heard about 7:30, lasting but a short time. It seems to me that the purpose of the early song at this time of year is to establish contact with other thrashers, primarily with Nova.

B stayed home all day and could be heard singing sub-song at almost any time. He seems to be able to summon Nova whenever he cares to; although I believe there are times, especially when she is abroad, when she will not come and he must go to her if he wants her company.

Dec. 12th.

Away all day, having left the night before. Julio reports morning song, and Rhody not seen. He did not take his meat from the cage either.

Dec. 13th.

A rain from the south came up during the night and it rained without cessation all day and into the night.

B was heard in the morning, but Rhody was not seen all day and did not come for his meat.

Dec. 14th.

Rain ceased during the night.

Early song not heard and B not seen up to noon.

Search for Rhody produced no results up to 11:30, at which time the sun came out. I then went to the western fence and called. Rhody came trotting out of the brush promptly with raised crest, looking dry and animated. He reached through the wire fence to take worms and meat from hand, then turned his back to the sun to let the rays soak in.

5:50 P.M. (Temp. 50) I have not seen Brownie during daylight hours today at all, nor heard him; but at 5:10 he was in his nest for the night. I had just looked there about 5 minutes before. Rhody did not go to the cage for meat during the day. About 4 P.M. I found him outside the fence, looking in, lonesomely. He crawled under it when he saw me and followed me for a short distance as I went to the house to get some meat for him. When I returned he was apparently waiting for me and gobbled the meat at once. I wonder what his idea is in not going for the meat himself; he knows where it is. Possibly he is getting luxurious in his tastes and now expects food to be brought to him. He has never struck me as being a very diligent hunter, anyway.

The little rail does not appear to be so tame; possibly because he has plenty of food in sight nearly all of the time and does not need to come to me.

Yesterday morning he was so thoroughly soaked that he looked black, and steamed, like a horse in the rain. He must have deliberately stood in the rain for a long time, as his nest, the bush and three quarters of the cage (the roofed portion) were perfectly dry. It could not have been due to bathing only, because he never wets himself so thoroughly.

Dec. 15th.

I heard Brownie "sounding off" a little after 7 A.M. and went out to apply the same remedy to his recent wandering away that I used on the 9th. He was in the glade, silent. After taking worms from hand he climbed the old oak and began calling, using phrases of full song. He was quickly answered by the same high pitched song from the south east as on the former occasion. Both birds sang at the same time. B would occasionally stop and listen in all directions, turning his head rapidly from side to side. When the distant song ceased he concentrated his attentions more upon

his immediate surroundings, as if anticipating Nova's arrival, and peered into the nearby trees at points where there were rustling sounds. A golden-crowned sparrow went up and sat about a foot behind him. B took one casual glance at him and ignored him thereafter. He then dived down into the bushes in the glade, but there were no sounds of meeting. He again climbed the old oak and once more began calling. The same song answered from apparently the same distance. It needed about a half hour to induce Nova to come, and several repetitions of descending into the bushes and again climbing the tree and calling. When she did come she first went to the suet mixture in the glade and ate, B watching quietly. She then joined him in the tree and they talked, without however, the harsh greeting sound usually heard on such occasions. B kept his back toward her and did not seem to look at her once. I left them there comfortably perched and looking off over the surrounding country composedly.

10:07. At 9:50 B was heard singing softly from the dormitory tree. I could not see him in the nest until he poked his head over the rim and looked down at me.

At this time last year the thrashers were carrying nesting material about at random. This year they are not doing it. It would seem that, whatever impulse may have been back of that ~~action~~ ^{behavior,} the possession of a nest this year has satisfied ^{some instinct} to at least an extent that makes that action unnecessary. B has a nest now; last December he wanted one.

Rhody took two huge helping of seed from within the cage and passed by the mirror numerous times without pausing to look at himself, in fact it seemed as if he put on a little more speed when passing it.

Two of us were watching him and he again demonstrated how his fear of strangers extends to me when they are present by bolting

hurriedly when I approached him. No amount of persuasion could stop him.

Dec. 16th.

B's morning behavior practically duplicated yesterday's, though this time he was rather excited about something and scripped loudly and repeatedly while sitting on my hand, looking in all directions as if I were merely a convenient perch. Once or twice I could look down his throat when he uttered the sound. He does not modulate it with his bill. The latter is wide open at the beginning and the end of the sound. It is impossible to identify the consonants (if any) but it is certain that the vowel sound is a short i and not ee. I have thought that khrick or hkrick approximated the sound as well as anything, and perhaps it does; although if one imagines that it is whip, it sounds like that also!

1:20 P.M. Brownie has been singing full song at intervals ever since this morning early, despite the fact that it began to rain about 9:30. He is at it again now. Something seems to have wound him up.

Shortly after it began to rain Rhody was found sitting disconsolately, but dry, under a garden bench. He responded readily to a show of worms, catching them in the air with precision. I instructed him to wait where he was (now in the open) which he did faithfully, and got a salamander previously captured for his benefit. This hapless creature was beaten upon the ground by him and then swallowed whole. This was not enough, so he went to the cage for meat, again passing back and forth by the mirror without pausing. I wonder if he is really learning the futility of getting excited about it.

Dec. 17th.

Brownie again sang full song repeatedly, beginning with his early morning summons of Nova. Although it was bright and clear,

he went to roost at 4:40--early for him. Nova went to the dorm with him; but flew out as I approached.

R.R. and
hawk.

A Cooper hawk flew off from its perch on the south west corner fence post as I approached and Rhody was seen lying in the open about 35 feet from the same point. There can be little doubt of the two bird's having seen each other, as there was nothing to obstruct their views; though, of course, Rhody's protective coloration may have caused the hawk to overlook him. In any case, Rhody gave no evidence ~~of~~ whatever of having been alarmed when I approached him. I did not see the two birds simultaneously.

Dec. 18th.

3:30 P.M. Brownie very much in evidence so far today; also Nova. A little early song.

About 11 A.M. I tried to approach Rhody with Donald Brock following about 75 feet after me; but he would not even stand my presence and promptly ran into the bushes.

An hour or so afterwards we tried new tactics on him. I located him in the open in my south west corner, Donald remaining out of sight well to the rear. Rhody, although plainly suspicious, took worms readily. I then called for Donald to come while I entertained the bird. This worked fairly well, though Rhody moved off to about 10 feet from where we two stood together, and was a little shy when I moved closer. I moved back and Donald approached him to about 8 feet. R stood this pretty well, though he gradually edged away slowly and went under the fence into the bushes; but not in panic. This is the first time that a visitor has been able to get a near view of the road-runner in a free state.

Dec. 19th.

Much singing by B before sunrise, ceasing shortly after that event. The point of sunrise is now at a place where the hills are lower (or subtend a smaller angle as seen from here) than further

north. As a consequence the sun's rays are striking here closer to the time of theoretical sunrise. ("Official" sunrise: 7:20, actual here: 7:30--only 10 minutes delay).

Brownie eats
an acorn.

At 9 A.M. Brownie and Nova were together in the orchard, the former sitting on a twig of the fig tree so as to reach the worms easier. He discovered an acorn that had split open and had mealy contents. He delayed coming for more worms until he had eaten the last crumb of the acorn, searching carefully for the smallest remnant.

B's defective
feather.

A few days ago the feathers on his left wing seemed in perfect condition and I suspected that he had been consulting a feather specialist during one of his daylight absences; but the deformed, curled feather has resumed its former condition.

Pat's terri-
tory.

Dr. Reynolds says that Pat (Little Brownie) has selected his neighbor's garden as his headquarters. This garden (Dr. Covell's) has a fairly large ^{open} lawn surrounded by dense shrubbery and good places in which to dig.

B's behavior
when fright-
ened.

About 9:30 I sat in a chair about 30 feet from B's nest, 60 feet from the old oak and 15 feet from the cage, with six pigeons eating at my feet. Brownie appeared in the berry patch, digging, but with his mind not really on the job, having in view the possibilities offered by my presence. He yielded to temptation, notwithstanding the presence of the pigeons, of whom he is suspicious, which is just what I wanted, as I wished to observe his behavior when they flew. This they did shortly while B was still with me, with a tremendous clapping of wings and "tearing of canvas", beginning less than three feet from B. The effect upon him was instantaneous. He bolted, half running, half flying in a zig-zag course (new for him) and sought refuge in a small oak 25 feet away, where he thought it over. This is the first time I have ever seen him get a really, a first class scare.

zig-zag flight.

B returns. However, he was back to me in a minute or two, first assuring himself
 Nova calls. that the pigeons had gone "entirely". Nova now began calling:
queelick, quilk..... from the old oak, B ignoring her.
 B goes to nest whether this reminded him of family matters, or he was stimulated
 to quiet nerves! by the worms (as suspected on numerous former occasions) or he
 decided to quiet his shattered nerves by a rest, he retired to the
 nest and lay there quietly for a few minutes. Nova meanwhile
 continues to changed her call to hrik, hrik-hrik (or whatever it is) with
 variations, but B remained silent. He then began to do a little
 work inside the nest and finally came down to dig and forage,
 absolutely ignoring Nova's continued calls.

At 11:50, as I passed the dorm, B was just going up to the nest
 again through the glass house, carrying nothing in his bill. Nova
 was scripping from the old oak.

B again avoids a visitor. About 1:30 I tried various tactics to induce Rhody to show him-
 self to another visitor who was a stranger to him; but Rhody would
 have nothing to do with him and disappeared in the shrubbery in the
 garden. When the visitor had gone, I searched for R and found him
 sitting calmly up in a small pine tree around which I had been
 hunting for him. He was not in the least alarmed, came down promptly
 and sat on the edge of the pool near me for a half an hour looking
 at the fish and watching the other birds. He made a circuit of
 the oval lawn and through the surrounding shrubbery which was full
 of birds; but he did not offer to molest ~~him~~^{them} and none complained
 of his presence--not even the wren-tits and spotted towhees.

Dec. 20th.

A foggy morning; but this did not keep B from singing and in-
 ducing Nova to come to him through the fog.

When Rhody came to the cage for meat, he found me inside the
 outer compartment feeding the rail and ^{partially} blocking his way
 to the meat..He did not have quite enough courage to squeeze by me,

so stopped to consider the matter. This process involved his standing in front of the mirror, thus affording him a way out of the dilemma, since forces beyond his control made it necessary to tap the "other" bird and display for his benefit, following up by making the grand, outside circuit of the cage to determine whether the other fellow was lurking in the bushes behind it. This gave me the opportunity to slip out and watch further proceedings when he completed the lap. As expected, he immediately entered the cage, got his meat and then stared, round-eyed at the other birds. His attention was concentrated mostly upon the rail, who stood near the mirror. Rhody dashed back and forth along the wire trying to get in to the rail, spreading his wings and tail. The proximity of the rail and the mirror, especially the latter's appearing out from behind it in the midst of Rhody's evolutions, I imagine, formed a picture fitting in more or less with the road-runner's vague anticipations, if any. Certainly the rail, in a superficial way, is not unlike a small road-runner that has lost its tail. In any case, Rhody got quite excited over the combination and wound up by again making the grand circuit in record time, following up by ^{a series of} ridiculous posings behind bushes, rattling of beak and cutting of swift figures of eight amongst the trees, ending with a final boo and a dash for the glade, as if disgusted with the futility of everything.

April 1st.

Another heavy fog, but Brownie singing in the early morning as usual.

I found Rhody still in his roost at 11 A.M.--the latest to date. I do not know how much longer he would have stayed there, but when I showed him a worm, he came down to me without hesitation, picking his way carefully through the branches and walking ^{through} ~~on~~ the porch of the house which I made for him, but which he will not use otherwise.

Dec. 22nd.

The usual early song by Brownie. He and his mate often together during the day. Occasional bursts of full song by B and considerable undersong.

shy.

Rhody was a little shy of me in an overcoat (which he has not seen before) and would not come when called; however, he waited for me in the vacant lot to the west while I climbed up the bank to him.

runs from

Later in the morning, when he was in the orchard, he ran from me, although I no longer had on the overcoat. However, I did have on clothes which he may not have seen before. This is the first time for a long time that he has behaved thus, except when a third person was present.

From his perch in the old oak, where he retired to sun himself, he looked down upon Brownie taking worms from me in the presence of two pigeons.

B and

B does not like the pigeons and is stiff and wooden in their presence and will not approach them nearer than about 3 feet.

Dec. 27th.

at

B sang loudly before sunrise, but the coming of the first rays he stopped and went off to the south east and could be heard in Reynolds territory, where he stayed all of the morning.

At 12:30 he suddenly appeared where I was transplanting a few wild things and then went to his nest where he sang softly at intervals for about an hour, sitting in it.

sang

4 P.M. Brownie ~~has been~~ undersong continuously (except for the few seconds required to reward him with worms) from about 1 P.M. to 3:40 P.M. During this time he did not dig or eat anything except my offerings, and stayed practically in one spot at the pine south of the tool house. From about 2:30 to 3 it was a duet; the other performer being a California jay sitting in a ceanothus about 9 feet from Brownie and seeming to be eating the aphids with which this

particular specimen is infested. I watched him from about 15 feet away and could not see that he was eating anything else. His song was about as loud as B's, soft and warbling for the most part, but with a few harsher notes. I got the impression very strongly that he was trying to imitate B. When I shifted my position slightly, there was Rhody, also sitting in a ceanothus, about 10 feet from the jay and about 8 feet from the spot I had just left. I had no inkling of his presence--in fact had just finished what I had thought to be a thorough search for him. An hour or so before I had nearly stepped on him. He is the most "invisible" bird when in plain sight of any of the local population. He was facing the two other birds and apparently listening. I hoped he would make it a trio, but he remained silent. When the jay left, Rhody came down and walked toward B, who was on the ground all of this time, but with no evident ulterior motive. B continued his song and merely shifted about 3 feet out of R's path. R went on by down the driveway headed for the street, but 5 minutes afterwards I nearly stepped on him again up in the patio, a place where he "never" goes. (When I come upon him unexpectedly in this way he usually runs off only about 2 or 3 feet and stops 5 or 6 feet from me). He seemed very curious about his surroundings, looking up at the walls of the house and the growing things in the garden .

hibiscus, pleroma, fuchsia
(Azaleas and poinsettia in bloom--the latter about 14 feet high).

(This is not really a patio but an upper level of the garden entirely protected from the north by the house and partially from the east and the west, also by the house; being open on the entire south side. Popularly, this arrangement is supposed to protect tender plants from frost injury; but as a matter of fact (though there has been no evidence of it here) the effect is just the opposite, as Gilbert White discovered about 150 years ago. Possibly it promotes earlier bloom, but it should be noted that the only azalea

(A. kurume) on the exposed north side of the house where it gets no sun for 6 months in the year, is also in bloom).

After spending about 20 minutes in the patio, Rhody came down and sat in the dwarf maple near me and stared at the birds about the oval lawn, finally running over to them intently, but not menacing them. There is little doubt of his interest in other birds, particularly, it seems, when they are up in the bushes, and I am inclined to think that he is not overlooking the possibility of nests. If he stays here until the next nesting season, I fear matters may come to an issue between us and I do not know what to do about, since I like to have him here and do not care to put him in jail again.

Dec. 24th.

The usual early morning song--this time keeping up until after 9 o'clock.

At 9:30 Brownie went to his nest for a long stay with occasional soft song. During this Nova called from the old oak.

Rhody ran true to form during the day.

Dec. 25th.

Early song as usual persisting until well into the forenoon, followed by nest-sitting by B.

Rhody reached through the fence, taking 21 worms from my fingers, one at a time, very gently. Later, returning along the path with meat for his Christmas dinner, I did not see him until he flushed directly at my feet, running off about 6 feet and there waiting for me. It is curious that he should take worms so gently, but snatch the meat.

Dec. 26th.

Early song as usual by B. A cold day.

As I could not find Rhody, I looked him up across the street and found him still in bed at 11:30 A.M. I tried to get him to

come down, but he would not. I made several trips to observe him. Each time he was still there. The last one was 12:20 and he still showed no signs of leaving his roost and was not at all interested in my offerings. (Cold: 48 deg.).

2:20 P.M. At 2 Rhody was still on his roost, not apparently having even winked in the meantime. I went outside the fence and where the tree overhangs and tossed up bits of meat to him. Two of these which came within his reach he caught expertly and swallowed, but he would not come down (presumably because it was only a matter of 2 or 3 hours to bedtime^{anyway}). A young lady in the house came out to look at him and stood by me. As she was a stranger to him, he promptly froze. Meat tossed within his reach he would pay no attention to. One piece landed on top of his bill and rolled along it for a moment, but he remained rigid. He was plainly afraid of the stranger and, at last, bolted, sweeping across the field in a wide, swift arc, across the street into the brush. When I went over there, I found him in a tree, not much disturbed. It is curious how instantly he recognises a stranger and reacts to his presence. His actual "rising" time was 2:06; but, even then, he yielded only to fear. Presumably the cold, overcast day has something to do with his lethargy (Temp. 50, wind from S., rain threatening) but, on the other hand, he may have been indiscreet in his Christmas revels.

Retired at 4:18 4:30 P.M. Rhody retired for the night at 4:18 P.M. His working day, therefore was 2 hours and 12 minutes--nothing much to gloat over. Furthermore, he loafed during most of that time.

As I drove by Dr. Scamell's at about 4:10, I stopped to see if R had gone to bed, and found him sitting on the iron railing of the ramp ready to make his first jump up into the branches--a lucky coincidence. Mrs. Scamell was just approaching the window to look for him. I walked up to him and pointed him out to her; about 10

R freezes
before audi-
ence.

or 12 feet from her. She called two others to the window and R promptly froze absolutely stiff. When I held a worm about four inches from his bill, he would not even roll his eyes. I told

They move back the onlookers that he was frightened and they moved back into the

room to a point where they could still see him, but where Rhody

thaws. (or perhaps not at all, due to sky reflection)
could see little of them, He then took the worm rather stiffly,

but soon thawed out and began to reach for them, again illustrating his shyness before strangers. I think he knows Mrs. Scamell and is not afraid of her. He will sometimes come out of the bushes across the street when she calls from the window on the chance of his being there.

(Temp 50) Notwithstanding the chilly, gloomy day, B has sung undersong almost constantly.

Dec. 27th.

Usual early song by B.

Rhody did not go to the cage for meat, but came to the fence for food very willingly.

Dec. 28th.

Early song as usual.

Rhody again preferred to have me hand him food at the western fence rather than visit the cage for it himself. He went to roost at 4:15, though it was bright and clear.

Brownie was heard singing from his nest at the same time and presumably had retired for the night, although this is early for him.

Dec. 29th.

A cold morning with wind from the south east, passing over snow on the hills at 3000 to 4000 feet elevation 40 to 50 miles away. (Temp. at 9:00 A.M.: 45).

B singing undersong at the oval lawn, fearful of the wind, but making swift dashes from the bushes to get one worm at a time from me. He sang loudly earlier as usual.

Rhody was not seen during the day and did not visit the cage.

Dec. 30th.

The usual early morning song, after which B left for an hour or so, returning to sit quietly in the glade, all by himself. Later he was at the oval lawn with two other thrashers and showed no disposition to assert territorial rights.

Rhody was found sitting in the open on top of a fence post just outside the north western corner--an unusual place for him. By leaning over the fence I could reach about 4 inches from the tip of his tail. He did not object to this procedure and kept his back toward me even when I held worms and meat at the same place. He merely glanced at the food casually and seemed to enjoy the view, which, from his post, extended clear out to the ocean horizon.

When I returned with a camera and snapped him from the few angles at which he was accessible, he showed neither interest nor concern; but when, after 30 minutes of this, he heard voices for the first time a long way out of sight to his rear, he took one quick glance in that direction, slipped off of the post and into the bushes, although there were no persons in sight and none appeared. It is curious how sensitive he is to the presence of strangers, even at a considerable distance. (Clear, temp.:58) *Serp. 866A*

Dec. 31st.

Brownie sang as usual during the hours preceding sunrise and was around all day, Nova being present much of the time, but keeping pretty well out of sight.

Rhody ran true to form. There appears to be a growing tendency on his part to expect me to come to him with food if he stands outside the fence long enough looking wistfully through it.

On one such occasion, at the south west corner, Brownie appeared also--an unusual circumstance--and when Rhody left to prowl around the shrubbery along the street, B followed him for about a hundred feet as if watching him.



Heady, sitting on a fence post, is disturbed by the sound of distant voices.

Upper; he looks around inquiringly, back feathers still partly spread to catch the sun.

Lower; he has located the direction from which the sound comes and listens intently, ready to bolt.

